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THE

COMPLETE WRITINGS

OF

THOMAS SAY,

ON THE

Conchology of the United States.

EDITED BY

W. G. BINNEY,

MEMBER OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, ETC.

NEW YORK:
H. BAILLIERE, 290 BROADWAY.
LONDON:—H. BAILLIERE, 219 REGENT STREET.
PARIS:—J. B. BAILLIERE ET FILS, RUE HAUTEFEUILLE.
MADRID:—C. BAILLY-BAILLIERE, CALLE DEL PRINCIPE.
1858.

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1858.

PREFACE BY THE EDITOR.

Much of the confusion which already exists in the synonomy of American Mollusca, has arisen from the general inaccessibility of the writings of THOMAS SAY. Scattered through numerous and costly works and obscure publications, they have always been obtained with difficulty, and for many years past a large portion of them have become absolutely unattainable. His species have been known to most American conchologists rather by tradition than from a careful study of his excellent descriptions; a fact readily accounting for the confusion which is to be found in the more recent American and European works.

To remedy this evil in the department in which my personal study has been more particularly devoted, I collected and published, in 1856, all Mr. Say's descriptions of land shells. Having since then been requested to add the fluviatile and marine species, I have now undertaken to do so, hoping thereby to induce a just appreciation of the labors of our greatest Naturalist, as well as to increase the facilities of the student of American Conchology.

This volume contains all the writings of Mr. Say on recent Conchology, excepting his "Glossary of Conchology," and "List of Exotic Shells in my Cabinet." The extracts from the numerous original works are given as nearly as possible in chronological order, the descriptions of terrestrial species being placed collectively at the commencement. To remedy the inconvenience of not having the various genera and species more nearly collated, I have added a complete alphabetical catalogue of all the species described in Mr. Say's writings, with a reference to the date, volume, page, and figure of the original publication and of this reprint. To this must be referred all questions relating to priority of publication of any disputed species.

The plates include all the figures ever published by Mr. Say. Plates 1 to 68, inclusive, have been printed from the original coppers of the "American Conchology." Plates 69, 70, 71, 72, are fac similes of the plates of Nicholson's Encyclopedia. On plate 70 will also be found fac similes of the figures of *Modiola opifex*, from the Journal of the Academy. Plates 73 and 74 are printed from the original copper-plates of Long's Expedition, which have been purchased by Mr. Baillière. Plate 75 is now for the first time published from a copper-plate prepared by Mr. Say.

All remarks of my own are distinguished by a different sized type, and are followed by the letters "Ed."

A large portion of the original manuscript of Mr. Say, and all the works containing his conchological writings are deposited in the noble library of the Academy of Natural Sciences of Philadelphia, in whose collection are still preserved many of the original specimens from which his descriptions were drawn.

I leave to abler hands the rectification of the nomenclature of Say's species, demanded alike by priority of publication, the advancement of the science, and the much greater facilities for studying them enjoyed by the American conchologist at the present day.

W. G. BINNEY.

Burlington, N. J., June, 1858.

LIST OF WORKS

CONTAINING THE

CONCHOLOGICAL WRITINGS OF THOMAS SAY.

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1. The article "Conchology," from the 4th vol. of the three American editions of Nicholson's British Encyclopedia of Arts and Sciences. Philadelphia, 1816, 1818, 1819.
2. A letter on *Ocythoë punctata*, in the Philosophical Transactions of the Royal Society. 1819.
3. Numerous articles in the Journal of the Academy of Natural Sciences of Philadelphia, viz:
   - Vol. I. Descriptions of seven species of American Fresh Water and Land Shells, not noticed in the systems. May, 1817.
     - The same concluded. June, 1817.
     - Descriptions of new species of Land and Fresh Water Shells of the United States. Oct., 1817.
     - Account of two new genera, and several new species of Fresh Water and Land Shells. June, 1818.
     - Description of a new genus of Fresh Water Bivalve Shells. December, 1818.
   - Vol. II. Descriptions of Univalve Shells of the United States. January, 1821.
     - An account of some of the Marine Shells of the United States. July, 1822.
     - The same continued. July, 1822.
     - The same concluded. July, 1822.
     - Descriptions of some Univalve Terrestrial and Fluviatile Shells of the United States. Dec. 1822.
   - Vol. IV. On a new species of Modiola. May, 1825.
   - Vol. V. Descriptions of some new species of Fresh Water and Land Shells of the United States. Sept., 1825.
     - Descriptions of Marine Shells recently discovered on the coast of the United States. Feb., 1826.
4. The "Mollusca" in the Appendix to Vol. II. of Major Long's Second Expedition to the source of St. Peter's River, &c. &c. Philadelphia, 1824.

5. The New Harmony Disseminator of Useful Knowledge. New Harmony, Indiana.

In octavo,—

Descriptions of some new Terrestrial and Fluviatile Shells of North America. July 29, 1829.

The same continued, Aug. 12, 1829; Aug. 26, 1829; Sept. 9, 1829; Sept. 23, 1829; Oct. 7, 1829; Oct. 21, 1829; Nov. 4, 1829; Nov. 18, 1829.

In newspaper form,—

The same continued, Dec. 30, 1830; Jan. 15, 1831; Jan. 29, 1831.

6. Transylvanian Journal of Medicine, Lexington, Kentucky.

Descriptions of several new species of Shells, and of a new species of Lumbricus. Vol. IV., 1831.

7. American Conchology, New Harmony, Indiana. Part 1, 1830; part 2, April, 1831; part 3, September, 1831; part 4, March, 1832; part 5, August, 1832; part 6, April, 1834; part 7, published after Say's death; edited by T. A. Conrad.

8. An attempt to exhibit a Synonomy of the Western North American species of the genera Unio and Alasmodonta, given with part 6 of American Conchology. April, 1834.

Some of the descriptions contained in the New Harmony Disseminator, not repeated in the American Conchology, were reprinted in pamphlet form by Mrs. Say, New Harmony, Indiana, 1840.

The American Conchology was intended to contain descriptions and figures of all the known species of American Mollusca. The noble undertaking was arrested, by the death of the author, at part 6. The seventh number was sufficiently advanced to allow its completion and publication by Mr. T. A. Conrad. A French translation of parts 1 to 5 has been published by M. Chern in his Bibliothèque Conchyliologique, vol. iii.

NOTE.—I have personally consulted all the works referred to above, with the exception of the first American edition of Nicholson's Encycyclopedia. This I have not been able to find. I give its date as 1816, on the authority of Ferussac, Mag. de Zool. 1835, cl. v. 59, 60, p. 11. I believe its species to be the same as in the second edition. The dates in the text and index are invariably of the *publication* of the various papers, without reference to the time they were read before any Society. In the Journal of the Academy, I have been forced to adopt the date of the general title page of each volume, unless with the signatures, or at the commencement of the various parts, some other date is given.

Being engaged in preparing a continuation of the work of my father, the late Dr. Amos Binney, on the "Terrestrial Mollusks and Shells of the United States," I take this opportunity of soliciting the assistance of those interested in the subject. Suites of local species from every part of the Union will be of great value to me in ascertaining the geographical distribution of species. They will be gratefully acknowledged, and, if required, shells given in exchange. I would also request any information relating to the subject, and any addenda or corrigenda to the "Mollusks."

Shells may be forwarded safely by mail, if packed in a pasteboard box, with tissue paper or cotton. Parcels exceeding the required weight of the Post-Office, may be sent by express.

W. G. BINNEY.

Address, Acad. of Natural Sciences, Philadelphia.

DESCRIPTIONS

OF

TERRESTRIAL SHELLS

OF

NORTH AMERICA.

By Thomas Say.

PHILADELPHIA:
CHILDS & PETERSON,
124, ARCH STREET.
1856.

PREFACE.

Anticipating that the publication of the Plates forming the third volume of my late father's work on the "Terrestrial Mollusks and Shells of the United States," will excite increased attention to that subject, it has been suggested to me by my friend, Mr. THOMAS BLAND of New York, that a reprint of the original descriptions and accompanying remarks of THOMAS SAY will materially assist in the study of this branch of Zoology.

I have accordingly collected and now publish, from the scattered and generally inaccessible writings of Mr. SAY, all that relates to our terrestrial species.

These pages are offered to the Conchologists of America and Europe to aid and encourage them in their investigations, and to induce a just appreciation of the labors of our first and greatest Naturalist.

W. G. BINNEY.

Germantown, near Philadelphia,
Nov. 1856.

The Extracts have been made from the following works:

1. The article Conchology, in the American edition of Nicholson's Encyclopædia, 2d ed. Philad. 1818, vol. iv., with figures.

2. Numerous articles in the Journal of the Academy of Natural Sciences of Philadelphia, vols. i. ii. v.

3. Expedition to the Source of St. Peter's River, &c. &c., under the command of Major Long. Vol. ii., Appendix, with figures. Philad. 1824.

4. American Conchology, or Descriptions of the Shells of North America. Illustrated by colored figures. New Harmony, Indiana, 1830-34.

5. Disseminator of Useful Knowledge. New Harmony, Indiana, 1829-31.

6. Transylvania Journal of Medicine. Vol. ii., 1832.

The extracts from the last two Journals have been made from the republication by Mrs. SAY, New Harmony, 1840, under the title, "Descriptions of some new Terrestrial and Fluviatile Shells of North America."

DESCRIPTIONS OF

TERRESTRIAL SHELLS OF NORTH AMERICA.

No. 1.—The Article "CONCHOLOGY," in Nicholson's Encyclopædia, Am. Ed., anno 1818.

1. **Helix albolabris.**—Shell thin, fragile; convex, imperforated; with six volutions, whorls obtusely wrinkled across, and spirally striated with very fine impressed lines, a little waved by passing over the wrinkles, both becoming extinct towards the apex, which is perfectly smooth; aperture lunated, not angulated at the base of the column, but obtusely curved, lip contracting the mouth abruptly, widely reflected, flat and white.

Length of the column three-fifths of an inch; breadth one inch.

Plate 1, Fig. 1. Lister, Conch. tab. 47.?—Rhodia, Gmelin's Ed. Syst. Nat.

The common garden snail, frequenting moist shaded situations, and is generally well known. It is very probable that this is the *Rhodia* of authors, but as in the description of that species nothing is mentioned of the reflected lip, and not having in our possession the volume of Chemn. Conch. referred to for a figure of it, we have made an interrogative reference, and for the present have adopted a new name.

2. H. **arboreus.**—Shell very thin, fragile, depressed, horn color, pellucid, very little convex: whorls four, irregularly wrinkled across; aperture sublunated, lip thin, brittle, junction with the body whorl acute; umbilicus large and deep.

Length, one-tenth of an inch nearly; breadth nearly one-fifth.

Plate 4, Fig. 4.

Under the bark of decaying trees very common. Inhabitant pellucid; base white, acute behind, not extending forward before the head; head and neck dusky; tentacula four; lower ones very short; eyes placed in the tip of the superior pair.

The application of the Goniometer, upon some commodious construction, might very much facilitate the investigation and determination of species, by ascertaining the precise angle subtended by the two sides of the spire in univalves. This angle, combined with the length and breadth of the shell, and proportionate length of the mouth, would, it is conceived, give us a better idea of form than we can have by the present mode of description. It is a plan we have adopted in describing our marine shells.

3. H. TRIDENTATA.—Shell depressed, spire very little raised, brownish or horn color; whorls five, crossed by numerous raised, equidistant, acute lines, separated by regular grooves; aperture lunate, three toothed; teeth placed triangularly, one on the pillar lip situated diagonally; outer lip abruptly contracting the aperture, widely reflected and white, furnished with two of the teeth resembling projecting angles. Umbilicus moderate.

Half an inch wide. Inhabits the Middle States. Plate 2, fig. 1.

Cochlea parva, umbilicata, tenuiter striata. Tridens sc. in triangulo positi, nempe unus ad fundum oris, alter ad columellam, tertius ad labrum. Lister, Conch. tab. 92, fig. 92.

The three curves formed by the two teeth in the outer lip of this shell bear considerable resemblance to the ornament often placed upon panels in Gothic architecture. It is found under the loose moist bark of decaying trees in some plenty. Belongs to the genus Polydontes, Montf.

As many of the compound terms as possible ought to be banished from the language of Natural History, we would therefore propose that the term *outer*-lip and *pillar*-lip be substituted by *Labrum* and *Labium;* these would be equally expressive, and occupy less space in a description.

4. H. ALTERNATA.—Shell somewhat convex, fuscous, varied or alternating with pale rays; whorls five, striated across with raised equidistant acute lines, forming grooves between them. Aperture thin and brittle; lip regularly curved, within glossed with perlaceous, and when placed before the light, the fuscous lines appear sanguineous. Umbilicus large, exhibiting all the volutions.

Three-fourths of an inch wide. Inhabits the Middle States. Plate 1, fig. 2.

H. radiata, Gmelin's Ed. of Syst. Nat. p. 3634.

Cochlea umbilicata, fusca, sive variegata, capillaribus stryis leviter exasperata. List. Conch. tab. 70, fig. 69.

Lister's figure, which is, without doubt, a representation of this species, is referred to in Gmelin as *H. Radiata*, but we believe our shell to be a distinct species from that which is found in France; we therefore apply a new name. Found under bark of dead trees and in moist places, and is not uncommon. In the young shell the whorls are less rounded and flattened above, so as to form almost an angle with the exterior margin; the colors are altogether paler, and may be described as pale yellow spotted or above radiate with reddish brown, and a row of spots interrupted from the radii by the immaculate prominent margin.

5. H. GLAPHYRA.—Shell very much depressed, thin, fragile, pellucid, polished; whorls five, regularly rounded, and with obsolete and irregular wrinkles across them; beneath whitish; umbilicus moderate, not exhibiting the volutions. Pl. 1, Fig. 3.

Taken by Mr. G. Ord in his garden in Philadelphia.

This species and the preceding are referable to the genus Zonitis, Montf.—a name which is objectionable from its being used in Entomology.

It considerably resembles *Helix nitens* of Europe, particularly in being whitish beneath, and will be properly arranged next that species in the systems.

The following species of Helix and other genera were also described in this paper, but the descriptions and remarks are merely a repetition from the Journal of the Academy, vol. i.

Helix thyroidus.
“ minuta.
“ labyrinthica.
“ hirsuta.
“ perspectiva.
“ lineata.

Polygyra auriculata.
“ avara.
“ septemvolva.
Oligyra orbiculata.
Succinea campestris.
“ ovalis.
Polyphemus glans.

PUPA CORTICARIA.—Shell dextral, cylindrical, obtuse at the apex; whorls five, not precipitately wrinkled or striate; aperture suborbicular, lip reflected; a single tooth on the pillar lip, near the outer angle; inner angle with an angular projection resembling a second tooth, sometimes obsolete.

Length about the tenth of an inch.

Plate 4, fig. 5.—A, natural size; C, an enlarged view.

Very common under the bark of trees, near the earth, and resembles *Turbe muscorum* of authors.

No. 2.—Journal of Academy of Natural Sciences, vol. i., p. 15 et seqq. anno May 1817.

Succinea ovalis.—Shell suboval, pale yellowish, diaphanous, very thin and fragile, with nearly three oblique volutions. Body very large; spire small, but little prominent, somewhat obtuse. Aperture longitudinally subovate, large. Columella much narrowed, so as almost to permit the view of the interior apex, from the base of the shell. Scarcely any calcareous deposit on the pillar lip. Length nine-twentieths of an inch, aperture seven-twentieths.

Inhabits marshy grounds in shaded situations; common. Collection of the Academy.

Animal longer than its shell, furnished with four tentacula, the two superior ones longer, cylindrical, supporting the eyes; inferior ones short, conic. Color pale, with minute black points, which are assembled into fascia on the sides and fillets on the neck above; neck granulate above, a black line passes each side on the neck, from the tip of the oculiferous tentacula, gradually disappearing under the shell. Front truncate, quadrate.

When the animal is living, so vitreous is the shell that all the markings of its body are plainly discernible; so that although the shell is of a straw color, immaculate, it appears of a dusky hue, with a remarkable white, flexuous, longitudinal vitta on the back, arising from the suture and terminated about midway to the base, often with two or three obsolete white spots near its tip. The characters of the inhabitant are widely distinct from the animal of the Lymnæa, and are somewhat allied to those of the inhabitants of the Helices: it cannot, however, be referred to Helix with propriety, as will be evident from the specific description. I have for the present considered it as of Draparnaud's genus Succinea, though it somewhat resembles a Bulimus, particularly in its habitat, being a terrestrial species, and in this respect it differs from Succinea. It may perhaps belong to Lamark's genus Amphibulimus.

Helix hirsuta.—Shell subglobose, brownish, imperforated, covered with short, numerous, rigid hairs; whorls five, but little rounded: suture distinct: aperture very narrow, almost closed by an elongated lamelliform tooth, situated on the pillar lip, and circularly joined to the outer lip at the base. Outer lip reflected back upon the whorl, and incorporated with it near the base, with a deep sinus in the middle. Beneath, one quarter of an inch. Lister, Tab. 93, f. 94?

Inhabits moist places; common. In the collection of the Academy. This species appears to be somewhat allied to *H. hispida*, but is sufficiently distinct. Found by Mr. Lardner Vanuxem.

H. PERSPECTIVA.—Shell very much depressed, with about six whorls; whorls striated across, with raised, parallel, acute lines, forming strongly impressed sulcæ between them. Umbilicus very large, resembling an inverted spire, in diameter at least equal to the breadth of the body whorl, and exhibiting distinctly all the votutions. Diameter three quarters of an inch. Found by Mr. Lesueur near Lake Erie.

H. LINEATA.—Shell very much depressed, somewhat discoidal. Whorls about four, each longer than broad, with numerous raised, parallel, equidistant, regular, revolving lines. Suture impressed. Umbilicus very large, diameter at least equal to the breadth of the body-whorl, and exhibiting all the volutions distinctly. Aperture longer than wide, lunate. Diameter three-twentieths of an inch, nearly.

Collection of the Academy.

Found by Mr. Robert E. Griffith, near Philadelphia. Somewhat resembles the last, but is more depressed, and the striæ are transverse, not longitudinal, as in that shell; the cavity beneath, also, though of equal proportional diameter, is not proportionally deep.

H. THYROIDUS.—P. 123 et seqq., October 1817. Shell thin, fragile, convex, umbilicate; whorls five, obtusely wrinkled, or rather with equidistant, gradually elevated, obtuse lines; and spirally striate, with minute, impressed lines; lip widely reflected, white and flat before, partially concealing the umbilicus; pillar-lip furnished with a very oblique tooth. Breadth four-fifths to nine-tenths of an inch.

This species very much resembles H. albolabris of Nicholson's Encyc., Amer. ed., but is umbilicated, and toothed on the pillar-lip. It is much less common. This shell was indicated in the American edition of the Encyclopædia, but its characters were not laid down.

H. MINUTA.—Shell rather thick; spire convex, little elevated, with three volutions; suture well defined, impressed; whorls obliquely wrinkled across; aperture nearly orbicular; lip much thickened, reflected, white, distant from the umbilicus; umbilicus large, exhibiting the volutions. Breadth less than one-tenth of an inch. Found under the bark of a decaying oak; is readily distinguishable from other species by its small size and conspicuous lip.

H. LABYRINTHICA.—Shell conic, dark reddish brown, body lighter; whorls five or six, with conspicuous, elevated, equidistant, obtuse lines across, forming grooves between them; apex obtuse, lip reflected, rounded; pillar-lip with a large, lamilliform, elongated tooth, which appears to revolve within the shell, parallel to the suture; a smaller raised line revolves nearer to the base within the shell, but becomes obsolete before it arrives at the pillar lip; umbilicus rather large. Breadth one-tenth of an inch.

Found on fungus in decaying wood. This shell is remarkable for the two much elevated lines, which revolve within the shell upon the penultimate whorl, the upper one larger, and terminating at the aperture very conspicuously, and resembling a tooth.

[illegible]

[illegible]

[illegible] upper edge of the [illegible] aperture longer than broad; lips thickened, [illegible] beneath; pillar-lip [illegible] beneath.

[illegible] at the tip of the super-[illegible]

[illegible] whorls five, a little [illegible] lines, forming [illegible] the preceding whorl, and carinate; umbilicus dilated, very small within, and exhibiting a groove on the outer whorl.

Breadth of the female nearly half an inch, of the male about three-tenths. Inhabits Florida. Cabinet of the Academy. This curious species we found near St. Augustine, East Florida, in a moist situation. They were observed in considerable numbers; the color is reddish brown, indistinctly banded with whitish lines, sometimes with darker ones, mouth white.

P. AVARA.—Shell covered with numerous short, robust hairs; spire convex; whorls four, regularly rounded, with hardly elevated lines forming grooves, which are much more conspicuous near the mouth; mouth subreniform, two projecting, obtuse teeth on the outer lip within, separated by a deep sinus; outer lip elevated, equal, describing two-thirds of a circle; pillar-lip elevated, broadly but not profoundly emarginate, concave beneath, and connected to the inner side by an elongated, lamelliform tooth, which is placed obliquely on the penultimate whorl, near the middle of the mouth; lips almost equally prominent, continued; umbilicus moderate, not exhibiting the volutions, no groove on the untimate whorl within it.

Breadth quarter of an inch. Inhabits Florida. Cabinet of the Academy. Animal longer than the breadth of the shell, acute behind, above granulated and blackish, beneath, and each side, white.

This we found in the orange groves of Mr. Fatio, on the river St. John, East Florida; it is usually covered with a black, earthy coat, which is probably retained and collected by the hairs. When unencumbered with this vesture, the shell is of a horn color. It is by no means so common as the preceding species.

P. SEPTEMVOLVA.—Shell much depressed, discoidal; spire not prominent; whorls seven, perfectly lateral, compressed, depressed, and marked with conspicuous lines and grooves above, a projecting carina on the upper edge of the body whorl, beneath which the lines and grooves are obsolete; aperture subreniform, not contracted; lips equal, elevated, outer one reflected, regularly rounded so as to describe two-thirds of a circle; pillar-lip projecting inwards, into an angle or tooth, which is concave beneath; beneath the four exterior volutions equally prominent, transverse diameters equal to those of the upper surface; umbilicus central, moderate, attenuated to the apex so as to exhibit the remaining volutions.

Breadth, female, two-fifths—male, three-tenths of an inch. Inhabits Georgia and East Florida. Cabinet of the Academy. A very common shell in many parts of Georgia, particularly the sea islands, also in East Florida. We found them numerous under the ruins of old Port Picolata on the St. John River, and on the Oyster-Shell Hammocks, near the sea, and in other situations under decaying palmetto logs, roots, &c.

These shells would have been referred by Linné to the genus Helix, but as that genus has been limited by Mr. Lamark and others, to those shells of which the apertures are broader than long, I cannot with propriety, in the present state of Conchology, consider them as of that genus. Neither can I refer them to either of the genera which have been separated from Helix by Messrs. Lamark, Montfort, &c., by the characters which those naturalists have given of their genera. They differ from the others in having the pillar-lip elevated considerably above the surface of the penultimate whorl, so as to be equally prominent with the outer lip, with which it forms an uninterrupted continuation, and by the concavities beneath the lips, formed by the protrusion of a portion of the shell into the aperture. In this last character it approaches the genus Caprinus of Mr. Montfort, but differs in being umbilicated.

SUCCINEA CAMPESTRIS.—Shell oval, very fragile; whorls three, not remarkably oblique, pale yellowish, with opaque, white, and vitreous lines, irregularly alternating.

Length not quite three-fifths, breadth seven-twentieths of an inch.

This shell is extremely common in many parts of the Southern States; it abounds in the sea islands of Georgia in the low, marshy grounds behind the sand-hills of the coast, where they are destroyed in great numbers by the annual conflagration of the old grass. On Amelia Island, East Florida, I found them in great plenty on the highest sandy ground of the island. On Cumberland Island, in Mr. Shaw's garden, I obtained several specimens from the leaves of radishes.

The resemblance between this species and the *ovalis* is very great; it differs, however, in being less elongated, and of a more robust form; the revolution of the spire is much less oblique, the shell itself is thicker and less fragile.

Animal whitish; eyes, inferior tentacula, and a line passing from the eyes, disappearing under the shell, black; a gamboge colored vitta is visible through that part of the shell which is opposed to the mouth.

Polyphemus glans.—This shell furnished De Montfort with the type of his genus Polyphemus; he refers to Bruquiere as the first describer of it, under the name of *Bulimus glans* in the Encycl. Method. The animal has not been described, but we are informed that it lives in the immense marshes, formed by the overflow of the great rivers that water the vast country of Louisiana. In the sea islands of Georgia, we found them numerous in the marshy districts immediately behind the sand-hills of the coast, in Florida in similar situations, and also on the Oyster-Shell Hammocks, and generally in such situations as are tenanted by *Succinea campestris*. The color of the shell on the spire is chestnut brown, which gradually and very perceptibly becomes paler to the aperture; aperture occupying about half the length of the shell. On elevated situations they are small, almost transparent, and of a fragile consistence. It is only in low, marshy situations that they attain their greatest size.

Length two inches and two-fifths, breadth one inch nearly.

Animal elongated, as long again as the shell, granulated, tentacula four, superior ones oculiferous, abruptly deflected at tip, beyond the eyes; inferior ones much shorter and deflected at tip; lips beneath the tentacula elongated, palpiform, almost as long as the superior tentacula, retractile, generally more or less recurved, compressed, attenuated, and acute at tip, and forming a considerable interval between their prominent bases.

When the animal is in motion, the elongated lips are used as tentacula to feel the way.

Genus Olygyra.

Shell rounded; aperture longer than broad, semiorbicular, emarginated by a projection of the penultimate whorl; external lip reflected; pillar-lip with obsolete calcareous deposit; umbilicus none; columella slightly angulated at base.

Animal terrestrial, operculated; tentacula two, filiform; eyes prominent, placed at the external base of the tentacula; rostrum bilabiated at tip, shorter than the tentacula; foot simple.

O. orbiculata.—Shell subglobular; spire not prominent, but more than convex; lateral line somewhat convex; whorls five, obsoletely striated across, regularly rounded; color pale greenish, yellowish, or slightly tinted with reddish, particularly on the body, and margined above by an obsolete white line; on the middle of the body a white vitta revolves, sometimes obscure or wanting; aperture acute above, regularly rounded at the base, and extending from the centre of revolution or base of the column to an equidistance between the base and the apex of the spire; base of the columellar slightly projecting into an obtuse angle; exterior lip whitish, reflected.

Length one-fifth of an inch. Inhabits East Florida. Cabinet of the Academy. Animal pale; rostrum and tentacula blackish, the latter with a white line; eyes very black, elevated in the form of a short tubercle; length about equal to the breadth of the shell; foot not broader than the body; tail rounded, or somewhat acute; operculum simple, not spiral, yellowish brown, minutely granulated.

This species we found in great numbers on what are called Oyster-Shell Hammocks, near the mouth of the river St. John, East Florida, in company with *Polygyra septemvolva.* When in motion the tentacula are elevated and depressed alternately, as if feeling the way.

This shell is certainly a Linnæan Helix, but according to the improvements which have been made in Conchology since the time of the Swedish naturalist, by Mr. Lamark and other systematists, it is at once excluded from that genus and its congeners, by having but two tentacula, and by its operculated aperture. With the genus Cyclostoma, as it now stands, our shell has more affinity than it has to any other, but a very distinct generic character is observable in the aperture, which is not orbicular as in Cyclostoma, but is almost semi-orbicular, greater in length than in breadth, and the lips widely disunited. In addition to the characters usually given of the animal of Cyclostoma, Mr. Cuvier remarks that the tentacula are terminated by obtuse tubercles; no such appendages are annexed to the corresponding members of this animal. Upon these considerations I have thought proper to construct the present genus.

Jour. Acad. vol ii. p. 150, anno, January, 1821.

HELIX MOLTILINEATA.—Shell thin, convex, imperforated; of a brown color, with numerous dark red, revolving lines, which are minutely and irregularly undulated; whorls six, with elevated, subequidistant lines, forming grooves between them; aperture lunated, not angulated at the base of the column, but obtusely curved; labrum contracting the mouth slightly, reflected, white, more or less distinctly stained by the termination of the spiral red lines, and adpressed to the body whorl near the base; umbilicus covered with a white callus.

Inhabits Illinois and Missouri. Length of the columella about three-fifths, greatest width rather more than one inch.

Animal granulated, granulæ large, whitish, interstices blackish; foot, beneath, black.

An exceedingly numerous species in the moist forests on the margin of Mississippi near the Ohio, and the Missouri as far as Council Bluff. The red revolving lines are numerous, varying from four or five to twenty-five or thirty and perhaps still more; they are sometime confluent into bands; when viewed within the mouth they appear sanguineous.

H. APPRESSA.—Shell depressed, brownish horn color; whorls five, depressed, forming an angle on the external one, more acute near the superior angle of the labrum, with numerous transverse, elevated, equidistant lines, with interstitial grooves; umbilicus covered over with calcareous matter, but concave within; aperture moderate; labrum dilated, reflected, white, margined with brownish; near the base, appressed to the body whorl, and covering the umbilicus; a slight projecting, dentiform angle on the inner middle; labrum with a strong, prominent, oblique, compressed, white tooth, which gradually slopes and becomes obsolete towards the umbilicus.

Var. a.—Labrum with two projecting angles. Breadth three-fifths of an inch.

Animal—foot pale; neck above and each side blackish. Inhabits the banks of the Missouri and Ohio.

This species is very common on the banks of the Ohio below Galiopolis; I also found it near Council Bluff. It very much resembles *H. tridentata*, but the umbilicus is covered over; the outer lip at base is flattened upon the shell; and there is but a single angle upon it. In Lister's Conch. pl. 93, fig. 93, is the representation of a shell, which is most probably intended for this species. Lister's figure is quoted in the books for *H. punctata*, but as the figure of a different species, (Born. Mus. pl. 14, fig. 17 and 18,) is also referred to as the same, I conclude that two distinct species have been confounded together under the common name of *punctata;* certainly the character from which this name was taken is never present on our shell. Specimens have been subsequently found by Dr. Thomas McEuen near the Falls of Niagara.

H. PALLIATA.—Shell depressed, with elevated lines, forming grooves betweeen them; epidermis fuscous, rugose with very numerous minute tuberculous acute prominences; volutions five, depressed above, beneath rounded, forming an obtuse angle exteriorly, which is more acute near the termination of the labrum; umbilicus covered with a white callus; aperture contracted by the labrum; labrum widely reflected, white, two profound, obtuse sinuses on the inner side above the middle, forming a prominent distinct tooth between them, and a projecting angle near the middle of the lip: labium with a large, prominent, white tooth, placed perpendicularly to the whorl, and obliquely to the axis of the shell, and nearly attaining the umbilical callus.

Inhabits Illinois. Length of the column seven-twentieths of an inch. Greatest breadth, four-fifths of an inch.

Var. a.—A very prominent acute carina; destitute of minute prominences. Inhabits Ohio. Breadth nearly one inch.

This shell is found on the banks of the Mississippi in moist places. It very much resembles *H. tridentata*, but is destitute of umbilicus, has a rugose epidermis, and is much larger. It is still more closely allied to *appressa*, but its superior magnitude, teeth and epidermal vesture distinguish it from that species. Specimens have subsequently been found by Dr. Thomas McEuen near the Falls of Niagara.

H. INFLECTA.—Spire convex; volutions five, wrinkled across; suture not profoundly impressed; aperture straight; labrum reflected, bidentate, teeth separated by a profound sinus, the superior tooth inflected; behind the lip a profound groove, which abruptly contracts the aperture in that part, so that although the lip is reflected, yet its edge is not more prominent than the general exterior surface of the body whorl; at base the lip is adpressed and covers the umbilicus; labrum with a large, prominent, oblique, lamelliform tooth; umbilicus closed.

Greatest transverse diameter nearly nine-twentieths of an inch. Inhabits lower Missouri.

The teeth of the labrum somewhat resemble those of *tridentata;* but in the form of the groove behind the labrum, and the pillar-tooth, it resembles *H. hirsuta.* Several specimens were found, but all dead shells, and destitute of their epidermis.

H. CLAUSA.—Shell fragile, slightly perforated, subglobular, yellowish horn color, above convex; whorls four or five; aperture slightly contracted by the lip; lip reflected, flat, white, nearly covering the umbilicus.

Inhabits Illinois. Greatest breadth from one half to three-fifths of an inch.

A small and handsome species, which somewhat resembles *albolabris*, but is much smaller, more rounded, and is subumbilicate. This shell also occurs, though, perhaps rarely, in Pennsylvania.

H. OBSTRICTA.—Shell depressed, with elevated lines forming grooves between them; epidermis pale brownish, naked; volutions five, depressed above, beneath rounded, with an acute, projecting carina; umbilicus covered with a white callus, indented; mouth resembling that of *H. palliata.*

Inhabits Ohio. Breadth nearly one inch.

This species is very closely allied to *Helix palliata*, but the epidermis is not covered with small elevations as in that shell, and the carina is very prominent and remarkable.

H. ELEVATA.—Shell pale horn color, spire elevated; whorls seven, regularly rounded; umbilicus none; aperture somewhat angulated; labrum dilated, reflected, pure white, at base adpressed to the body whorl, abruptly narrowed on the inner edge beneath the middle, and continuing thus narrowed to the superior termination, leaving a projecting angle behind the middle; labium with a large, robust, very oblique, subarquated, pure white tooth.

Greatest breadth seven-eighths of an inch. Column nine-sixteenths of an inch.

Found rather common in the vicinity of Cincinnati, Ohio. It seems to be distantly related to *thyroidus* by the tooth on the labium, but this tooth is much more robust; it differs much more essentially by the much more elevated spire, and by the superior half of the dilated lip being abruptly narrowed so as to form a prominent angle near the middle. It is also a much thicker shell.

H. INTERNA.—Shell yellowish red; volutions six or eight; whorls with regular, equidistant, elevated, obtuse lines across them, separated by regular grooves; lines obsolete beneath; spire convex, little elevated; aperture very straight, transverse, less than one half of the longitudinal diameter; labrum not reflected; within, upon the side of the labrum, two prominent, lamelliform teeth, of which the superior one is largest, and neither of them attain the edge of the lip; region of the base of the columella much indented; umbilicus obsolete or wanting.

Transverse diameter more than three-tenths. Height of the columella about three-twentieths of an inch. Inhabits Lower Missouri.

Of two specimens which I obtained, the larger one had six volutions, and the smaller one had eight; the superior tooth in the larger one was concave towards the base of the shell. It is a remarkable and very distinct species.

H. CHERSINA.—Shell subglobose-conic, pale yellowish white, pellucid, convex beneath; volutions about six, wrinkles not distinct; spire convex-elevated; suture moderate; body whorl slightly carinated on the middle; mouth nearly transverse, unarmed, the two extremities nearly equal; labrum simple; umbilicus none.

Inhabits the Sea Islands of Georgia. Breadth one-tenth of an inch. Cabinet of the Academy.

A very small species. But one specimen occurred in a cotton field. It is rather larger than *H. labyrinthica.*

H. GULARIS.—Shell subglobose, pale yellowish horn color; polished, pellucid, beneath near the aperture whitish-yellow opake; volutions six or seven, with prominent, somewhat regular wrinkles; spire convex, a little elevated; suture moderate; labrum not reflected; throat far within upon the side of the labrum, bidentate; teeth lamelliform, of which one is oblique and placed near the middle, and the other less elongated, placed near the base; umbilicus none.

Breadth more than one-fourth of an inch. Inhabits Ohio and Pennsylvania.

In general form it resembles *H. ligera*, but may be distinguished by the absence of umbilicus, and, upon particular examination, by the teeth, which are situated far within the aperture. In the collection of the Academy.

H. LIGERA. Shell subglobose, pale yellowish horn color, polished; body whorl pellucid, yellowish white, opake beneath near the aperture; volutions rather more than six, all except the apicial one, wrinkled across; spire convex, a little elevated; umbilicus very small; suture not deeply impressed; labrum not reflected.

Inhabits Missouri. Greatest length three-tenths, oblique length less than nine-twentieths, transverse diameter less than eleven-twentieths.

Approaches nearest to *H. glaphyra*, but is readily distinguished by the greater convexity of the spire, and the smaller umbilicus. Rather common. In Lister's Conch. on pl. 81, fig. 82, a shell is represented which may be intended for this species.

H. SOLITARIA.—Shell subglobose, with two or three revolving, rufous lines; spire conico-convex; volutions five and a half, wrinkled across and rounded; suture rather deeply impressed; aperture wide, embracing a rather small portion of the penultimate whorl; labrum not reflected; umbilicus large, distinctly exhibiting all the volutions to the apex.

Greatest transverse diameter nearly one and one-fifth of an inch. Inhabits lower Missouri.

But a single specimen was found; it was a dead shell, destitute of its epidermis. It is a very distinct species.

H. JEJUNA.—Shell subglobular, glabrous, pale reddish brown; volutions five, slightly wrinkled, regularly rounded; spire convex; suture rather deeply impressed; aperture dilate lunate; labrum a little incrassated within, not reflected; umbilicus open, small.

Breadth rather more than one-fifth of an inch. Inhabits the Southern States.

Animal—light reddish brown, with a granular surface, longer than the breadth of the shell; oculiferous tentacula elongated, and rather darker than the body.

This shell is very closely allied to *H. sericea* of Southern Europe, but it differs from that species in being destitute of the hirsute vesture. I found several specimens of *jejuna*, during an excursion some time since into East Florida, at the Cow Fort on St. John River. It is in the collection of the Academy.

H. CONCAVA.—Shell much depressed, suborbicular, horn color, or whitish, immaculate; volutions five, irregularly wrinkled across, more convex beneath; suture distinctly impressed; umbilicus very large, exhibiting all the volutions to the summit distinctly; aperture large, short; labrum towards the base very slightly and inconspicuously reflected.

Inhabits Illinois and Missouri. Greatest width seven-tenths of an inch.

Found in moist places near the Mississippi River, on the Missouri as high as Council Bluff, and on the Sea Islands of Georgia. It is a much depressed shell.

H. DEALBATA.—Shell conical, oblong, thin and fragile, somewhat ventricose; volution 6-7, wrinkled across, wrinkles more profound and acute on the spire; spire elevated, longer than the aperture, sub-acute; aperture longer than wide, labrum not reflected; umbilicus small and profound.

Length more than three-fourths of an inch, breadth nine-twentieths of an inch. In the Cabinet of the Academy and Philadelphia Museum. Inhabits Missouri and Alabama.

In outline it resembles a Bulimus. Four specimens of this species were sent to the Academy from Alabama, by Mr. Samuel Hazard; and a single depauperated specimen was found by myself on the banks of the Missouri.

H. PROFUNDA.—Shell pale horn color; spire convex, very little elevated; whorls five, regularly rounded, and wrinkled transversely; body whorl with a single revolving rufous line, which is almost concealed on the spire by the suture, but which passes for a short distance above the aperture; aperture dilated; labrum reflected, white, and excepting near the superior angle, flat; a slightly projecting callus near the base, on the inner edge; umbilicus large, profound, exhibiting all the volutions to the apex. Transverse diameter nineteen-twentieths of an inch.

Var. a.—Multilineated with rufous. Var. b., rufous line obsolete. Inhabits Ohio, Mississippi and Missouri banks.

A pretty shell, neatly ornamented with the rufous zone; the spire is very much depressed. Specimens occurred near Cincinnati on the Ohio, and at Engineer Cantonment at Council Bluff, on the Missouri.

Besides the above species, I have observed in the western regions the following known species, which I described in the American edition of Nicholson's Encyclopædia, and in the Journal of the Academy.

H. ALBOLABRIS.—Common as far as Council Bluff.

H. THYROIDUS.—On the banks of the Ohio, Mississippi and Missouri. The animal is of a pale whitish or yellowish color, immaculate.

H. ALTERNATA.—On the banks of the Ohio, Mississippi and Missouri Rivers; this species varies in being somewhat larger, and in having a rather more elevated spire. The animal is of a dirty yellowish orange color. The foot obtusely terminated behind, head and tentacula pale bluish, eyes blackish. Shell nine-tenths of an inch in breadth.

H. HIRSUTA.—Common as far as Council Bluff.

H. LABYRINTHICA. " " "

H. MINUTA. " " "

H. PERSPECTIVA.—Occasionally occurs on the banks of the Missouri, and other western streams, and in some parts common.

POLYGYRA PLICATA.—Shell convex beneath, depressed above, spire slightly elevated; whorls five, compressed, crossed by numerous raised, equidistant lines, which form grooves between them; aperture subreniform, labrum reflected, regularly arquated describing two-thirds of a circle; within two-toothed, teeth not separated by a remarkable sinus; labrum with a profound duplicature, which terminates in an acute angle at the centre of the aperture; beneath exhibiting only two volutions, of which the external one is slightly grooved near the suture.

Inhabits Alabama. Breadth one-fourth of an inch. Cabinet of Academy.

This species is about the same size as P. avara, but, besides other characters, it is sufficiently distinguished by the acute fold of the labrum. It was sent to the Academy by Mr. Samuel Hazard.

PUPA ARMIFERA.—Shell dextral; oblong oval, or somewhat obtusely fusiform; suture distinct; whorls six, obsoletely wrinkled; aperture longitudinally subovate; exterior lip reflected, but not flattened, interrupted above by the penultimate whorl, and with five teeth, of which the superior one, and that which precedes the basal one, are smallest; labrum with an undulated lamelliform tooth, its anterior extremity little elevated, but elongated so as almost to join the superior extremity of the exterior lip.

Length three-twentieths of an inch. Inhabits Upper Missouri.

Var. a.—The two smaller teeth obsolete or wanting. Var. b.—The basal tooth obsolete or wanting.

Very distinct from *corticaria*, it being a much larger and proportionally more dilated shell; and with that species and the next seems to belong more properly to the genus *carychium* of Muller and Ferussac.

P. RUPICOLA.—Shell dextral, attenuated to an obtuse apex, white; whorls six, glabrous; suture deeply impressed; labrum bidentate; superior tooth lamiform, emarginate in the middle, and at the anterior tip obtusely uniting with the superior termination of the labium; inferior tooth placed upon the columella, and extending nearly at a right angle with the preceding; labrum tridentate, teeth placed somewhat alternately with those of the labium, inferior tooth situated at the base and immediately beneath the inferior tooth of the labium.

Length about one-tenth of an inch. Inhabits East Florida.

I formerly found it abundant on the banks of St. John River, in East Florida, and more particularly under the ruins of Fort Picolata, under stones, &c.

It is about the size of *P. corticaria*, and considerably resembles that species, but is sufficiently distinguished by the circumstance of its gradually decreasing in diameter from the body whorl, to its obtuse tip; and, in the character of the mouth, it is widely distinct.

SUCCINEA OVALIS.—(Jour. Acad. Nat. Sc. vol. i. p. 15.) A large variety of this species is found very common on the Missouri, of the length of about four-fifths of an inch; I observed one specimen which was upwards of an inch long.

CYCLOSTOMA MARGINATA.—Shell turreted, pale horn color, or dusky, obsoletely wrinkled across; suture rather deeply impressed; volutions six; aperture mutic, suboval, truncated transversely above by the penultimate whorls, nearly one-third the length of the shell; labium nearly transverse, color of the exterior part of the shell; labium equally and widely reflected, thick, white, umbilicus distinct.

Inhabits Upper Missouri. Length one-fifth of an inch.

Size of *Paludina lapidaria*. Lister represents a species on plate 22, fig. 19, which, although rather larger, may possibly be intended for this species; he denominates it "Buccinum exigium, rufum, quinq orbium." This shell does not perfectly correspond in character with Cyclostoma; it is most probably a Pupa, and if so, the specific name must be changed, as the present name is preoccupied in that genus.

Journal of the Academy. Vol. ii., page 370, anno, June, 1822.

Helix irrorata.—Shell imperforate, depressed, subglobular, pale reddish brown, with very numerous small white spots, and about four deeper brown obsolete bands; whorls rounded, nearly five in number, wrinkles obsolete on the body whorl, more distinct on the spire; spire depressed, convex; suture declining much near the mouth; aperture on the side of the labrum, within somewhat livid; labrum reflected but not flattened, and not abruptly contracting the aperture, white before and yellowish behind; near the junction with the columella is a callus, which does not rise into an angle.

Length from the apex to the base of the columella, three-fifths of an inch nearly. Greatest breadth one and one-tenth of an inch. Inhabits Northumberland county, Pennsylvania. Cabinet of Mr. William Hyde.

This species may be compared with the H. lactea, Muller and Ferussac; the spire is rather more prominent, the white spots, or rather abbreviated lines are similar in form, size and number, but its labrum preserves the same color with the exterior of the shell, and the livid tint of the inner portion of the body whorl is very pale; the posterior face of the reflected labrum is immaculate, and its callus base is not angulated; the aperture is much less wide than that of *lactea;* and in Mr. Hyde's specimen, a small fissure remains near the umbilicus. It still more closely resembles a variety of a shell which inhabits the Island of Candia, but that species has always a white base, being immaculate beneath the inferior band.

H. INORNATA.—Shell subglobose, pale yellowish horn color, polished; whorls five, rounded, wrinkled; spire convex; suture not deeply impressed; umbilicus small, profound; aperture wide, at the junction of the labia with the penultimate whorl shorter than the width of the mouth; labrum simple.

Inhabits Pennsylvania. Greatest width less than seven-tenths of an inch.

This species has a strong resemblance to *H. ligera*, but in addition to its superior magnitude, its aperture is proportionally wider, a character which of course gives the whorls a greater breadth; the whorls are also fewer in number, and the distance between the terminations of the lips is very perceptibly less than the width of the aperture, the reverse of which obtains in the *ligera*.

H. INDENTATA.—Shell depressed, pellucid, highly polished; whorls four, with regular, distant, subequidistant, impressed lines across, of which there are about twenty-eight to the body whorl, all extending to the base; suture not deeply indented; aperture rather large; labrum simple, terminating at its inferior extremity at the centre of the base of the shell; umbilicus none, but the umbilical region is deeply indented.

Greatest breadth one-fifth of an inch. Animal blued-black, immaculate.

My cabinet and that of Mr. Wm. Hyde. Several specimens occurred at Harrigate, the country residence of my friend Mr. Jacob Gilliams, adhering to stones and logs in moist places. Mr. Hyde obtained many individuals in New Jersey. It may readily be mistaken for H. arborea, but it is destitute of the umbilicus, instead of which there is an indented centre to the base, in which the labrum terminates. The spire is very much depressed, and the surface prettily radiated by distant impressed lines, the interstices being perfectly smooth.

H. LINEATA.—(Vol. i., p. 18.) On examination of several individuals of this species, I have ascertained that a character exists in this species that was altogether wanting in the specimen from which I drew out the description published in the first volume of this work. As the shell is somewhat translucent, two pairs of white teeth, remote from each other, may be observed through the body whorl of the shell. One pair of these teeth is placed in the throat, so near to the labrum as readily to be seen by looking in at the aperture. These teeth are nearly equidistant from each other, and from the extremities of the labrum. The other pair is placed so far within the shell as not to be seen at all from the aperture.

I found several specimens in a humid situation at Harrigate.

BULIMUS MUTILATUS.—Shell turriculated, pale reddish brown; whorls four, longitudinally striated with irregular elevated lines or wrinkles, which are a little more prominent near the sutures; suture not deeply indented; apex widely truncated; labrum whitish, destitute of calcareous deposit; body whorl more than double the width of the truncated apex; spire one and a half times longer than the aperture. Length less than one inch; width less than half an inch; length of the aperture two-fifths of an inch.

Inhabits South Carolina, about Charleston.

This curious shell is the first and only species of the genus Bulimus, native of the United States, that I have yet seen. I am indebted for it to the researches of Mr. Stephen Elliott, of Charleston, who informs me that it is there found in gardens. In the truncated form of the apex of the spire, this species resembles the *decollata*, *consolidata*, *truncata*, and *Pupa torticollis*, &c., but it is sufficiently distinct from the former, to which it is more closely allied than to the others, by its less cylindrical and more conic form, being much more robust in its figure and less elongated; the aperture is consequently wider, and forms a greater proportion of the total length. It does not change to an opake white after the death of the animal, as the *decollata* generally does.

PUPA CONTRACTA.—Shell dextral, short, subovate, white; apex obtuse; whorls five; umbilicus distinct; aperture regularly orbicular, complete, the lamina of the labium being elevated above the surface of the preceding whorl, and joining the extremities of the labia; labium with a large, elongated, prominent tooth, which is concave on the side towards the labrum; labrum bidentate, a large tooth or fold far within the throat, caused by the fold of the umbilicus; throat much contracted by the large tooth of the labrum into the form of a horse-shoe.

Total length less than one-tenth of an inch. Inhabits Virginia.

This is a short, wide species, sufficiently distinct from others, and readily distinguished by the lamina of the labrum being much elevated, and by the magnitude of the tooth of the labium. I obtained two specimens at Occoquan, under a pile of bricks and rubbish. This species probably belongs to the genus Carychium.

P. EXIGUA.—Shell dextral, tapering, oblong, with minute grooved lines; apex obtuse; whorls five; suture deeply impressed; labium bidentate, superior tooth situate rather beneath the middle of the lip, inferior tooth small, placed on the columella; labrum mutic, reflected, but not flattened; umbilicus distinct.

Length more than one-twentieth of an inch.

This is the smallest species that I have seen. Numerous specimens of it were found near this city by Mr. William Hyde, and I have obtained many at Harrigate. Its aperture resembles that of Pupa (Carychium) *corticaria*, but the superior tooth of the labium of that shell is situate much nearer to the superior termination of the labrum than the corresponding tooth of this diminutive species. It is probably a Carychium.

GENUS VERTIGO—MULLER AND FERUSSAC.

P. (VERTIGO) OVATA.—Shell dextral, subovate, brown; apex obtuse; whorls five, glabrous; suture not very deeply impressed; body whorl indented near and upon the labrum; aperture semi-oval; labium five-toothed, of which three are situate on the transverse portion of the lip, parallel to each other, equidistant, the superior and inferior ones being small, the latter sometimes obsolete, the intermediate one lamelliform, prominent, and the two others situate on the columella, approximate, extending at right angles to the three preceding ones, the superior one oblique and smaller; labrum reflected, but not flattened, bidentate, teeth lamelliform, prominent; umbilicus distinct.

Length less than one-tenth of an inch. Breadth nearly one-twentieth of an inch.

Animal—tentacula two, rather long and thick, cylindrical-obconic, retractile, with a rounded oculiferous extremity; foot white; head and neck, as far as the mantle, black.

Inhabits Pennsylvania Numerous specimens were discovered by Mr. William Hyde in the vicinity of this city, and I obtained others at Harrigate. The smallest teeth of the labium are sometimes obsolete.

V. PENTODON.—Shell dextral, subovate, whitish horn color; apex obtuse, whorls five, glabrous, convex; suture not very deeply impressed; aperture semioval; labium two-toothed, of which a single very prominent one is on the middle of the transverse portion or true labium, and the other is remote, much smaller, and placed in the basal angle of the columella; labrum regularly arquated, tridentate, tooth nearest the base very small, and placed near the smaller tooth of the columella, the two others larger, subequal; umbilicus distinct.

Length less than one-tenth of an inch.

Animal—tentacula two, rather long and thick, cylindrical obconic, retractile, with a rounded oculiferous extremity; two hardly elevated truncated tubercles instead of the anterior tentacula; foot white; head and neck, as far as the mantle, black.

Inhabits Pennsylvania. The lower tooth of the labrum is sometimes obsolete.

MELAMPUS OBLIQUUS.—Obconic, reddish brown, rather thick; spire very little elevated; whorls eight or nine, wrinkled across; labium with two very distinct teeth, and an intermediate and equidistant slight obtuse prominence; inferior tooth very oblique, terminating at the base; labrum with about eight teeth or striæ, which terminate on the margin; base of the aperture a little contracted by the basal tooth.

Length more than seven-twentieths of an inch. I am indebted to Mr. Stephen Elliott for this species, who obtained it on the coast of South Carolina. It is closely allied to *Bulimus monile*, *Brug.*, but it has no appearance of bands, which distinguish that shell. In the collection of the Academy are specimens from the West Indies.

In the Journal of the Academy, vol. v., page 119, et seqq., anno, 1825.

HELIX FALLAX.—Spire convex; volutions five, with elevated lines forming grooves between them; labrum reflected, contracting the aperture, bidentate; teeth separated by a profound sinus; superior tooth inflected into the mouth; inferior tooth situated near the base; labrum with a large, prominent, oblique, lamelliform tooth, curving downwards so as nearly to reach the termination of the labrum; umbilicus open, exhibiting the volutions.

Greatest transverse diameter nine-twentieths of an inch.

This resembles the *tridentata*, *Nob.*, but the upper tooth of the labrum is much inflected, the spire is more elevated, and the size is less considerable; in the former character it coincides with *H. inflecta*, *Nob.*, but that shell has the umbilicus closed.

Presented to the Academy by Messrs. Hyde and Mason, who found it in the vicinity of Philadelphia, where it is not uncommon.

Since the above was written, I received a specimen from Mr. Stephen Elliott, of South Carolina, fully equal in size to the *tridentata*.

H. EGENA.—Shell convex, polished; whorls five, not distinctly wrinkled, rounded; aperture rather narrow, transverse; labrum simple, at its inferior extremity terminating at the centre of the base of the shell; umbilicus none, but the umbilical region deeply indented.

Breadth more than one-tenth of an inch.

This shell was found by Mr. John S. Phillips on the banks of the Delaware River, about ten miles from Philadelphia. It is much more elevated and not so broad as *H. arborea*, *Nobis.*; the aperture also is of a different shape. It is much broader than the *H. chersina*, *Nob.*

BULIMUS MULTILINEATUS.—Shell conic, not very obviously wrinkled; whorls not very convex, yellowish white, with transverse entire reddish brown lines; a blackish subsutural revolving line; suture not deeply indented, lineolar; apex blackish; umbilicus small, surrounded by a broad blackish line; columella whitish; labrum simple, blackish.

Length less than seven-tenths of an inch. Greatest breadth less than seven-twentieths of an inch. This species was found by Mr. Titian Peale on the southern part of East Florida.

PUPA FALLAX.—Shell turreted, pale horn color; wrinkles rather obtuse, hardly prominent; suture rather deeply impressed; volutions nearly seven, a little convex; apex somewhat obtuse; aperture unarmed, suboval, truncated above by the penultimate whorl, less than one-third the whole length of the shell; labrum nearly transverse, color of the exterior part of the shell; columella reflected, rectilinear, longitudinal, forming an obvious though a rounded angle with the labrum and the labium: labrum hardly reflected; umbilicus narrow.

Length more than three-tenths of an inch. For this species I am indebted to Dr. T. W. Harris, of Milton, Massachusetts.

It closely resembles *P. marginata*, *Nob.*, but is much larger, and the labrum is not widely reflected. When viewed in front it has a reflected appearance, but the opposite view presents only a very limited excurvature.

ACHATINA SOLIDA.—Shell conic, rather elongated, nearly smooth, or with distant wrinkles, polished, yellowish, paler towards the apex, which is white; rather ponderous; whorls about seven; spire prominent; mouth rather small; labrum on its inner submargin thickened; columella hardly truncated, with a somewhat prominent ridge on the inner side near the base.

Length two and a half inches. This species was found by Mr. Titian Peale in the southern part of East Florida, where he also obtained the *A. flammigera*, *Fer.*, and *vexillum*, *Humph.*, or their analogues, in plenty. In outline it bears some resemblance to Lister's fig. 9, of plate 14, but is much smaller. It appears to be rare, but one specimen having been brought home by Mr. Peale.

CYCLOSTOMA DENTATUM.—Shell conic, cylindric, truncate at tip; whorls three or four, slightly convex, cancellate, with fine, regular, subequal, longitudinal, and transverse elevated lines; superior edge fimbriated, with prominences extending over the suture; one or more rufous revolving lines, sometimes obsolete; labrum somewhat reflected, white; umbilicus distinct.

Length less than one-half inch.

For this species we are indebted to the researches of Mr. T. Peale in Florida. It is the only true species of Cyclostoma yet found within the limits of the Union. This species is somewhat like the *Turbo crenatus*, *Linn.*, but that shell is not said to be truncated at tip, and has a keeled base.

No. 3.—In the Appendix to Long's Second Expedition to the St. Peter's River, the following species were described, anno, 1824.

HELIX HARPA.—Shell conic, reddish brown; whorls four, convex, with numerous elevated, subequidistant, equal, lamelliform, acute lines across, the interstitial spaces flat and wrinkled; aperture suborbicular, truncated by the penultimate whorl, and very little oblique; labrum simple; umbilicus small, nearly concealed by the base of the labrum.

Length rather more than one-tenth of an inch. Inhabits the North-west Territory.

The elevated lines on this shell give it a very handsome appearance, and readily distinguish it from any of our native species that I have seen. The European analogue is the *aculeata* of Muller, but our shell is destitute of recurved points on the lamelliform lines. Pl. 15, f. 1.

H. PORCINA.—Shell depressed, yellowish brown; epidermis rugose, with minute, very numerous bristles; whorls rather more than four, depressed above, beneath rounded, forming a very obtuse angle rather above the centre of the whorl; umbilicus open, rather small, profound; labrum simple.

Breadth rather more than three-tenths of an inch. Inhabits North-west Territory. Pl. 15, f. 2.

H. FRATERNA.—Shell convex, brownish horn color, minutely hirsute; whorls five, rounded; umbilicus partially or entirely closed by the termination of the labrum; region of the umbilicus indented; aperture much contracted by the labrum; labrum reflected, white, unarmed; its outer edge not projecting beyond the curve of the whorl; its inferior angle extends to the centre of the base of the shell; labium with a strong, prominent, compressed, white tooth.

Breadth one-third of an inch. Inhabits Pennsylvania.

I obtained a specimen of this shell several years ago, but supposing it to be an accidental variety of the *hirsuta*, I laid it aside without further notice. Since then, however, Messrs. Hyde and Mason have presented numerous specimens of the same species to the Academy, having found it rather common; I therefore no longer hesitate to consider it as a distinct species. It resembles *Helix monodon* of Mr. Rackett (Trans. Linn. Soc. London, vol. xiii., pl. 5,) in the conformation of the aperture, but that shell is represented as being largely umbilicated, and its labrum does not extend near to the centre of the base, as it does in our shell. Pl. 15, f. 3.

H. DIODONTA.—Shell somewhat depressed; spire convex, very little elevated; whorls five, rounded, regularly, but not prominently wrinkled, and grooved transversely; aperture moderate;

labrum reflected, with a slightly projecting dentiform callus near the base on the inner edge; labium with an oblique tooth on the middle; umbilicus rather large, profound, exhibiting all the volutions.

Breadth rather more than seven-tenths of an inch. This shell inhabits the State of New York. It is closely allied to *H. profunda*, *Nob.*, but may be distinguished by its smaller size and armed labium. Its aperture also is much more dilated than that of the *profunda*, Pl. 15, f. 4.

H. PERSPECTIVA, NOB.—Is common in the North-west Territory; it varies in being smaller, and in the circumstance of the labrum embracing a somewhat smaller portion of the penultimate volution.

H. ARBOREA, NOB.—Common in this Territory.

H. CHERSINA, NOB.—A variety of this species is not uncommon in the North-west Territory. It differs in the greater rotundity of the upper part of each whorl, and in the somewhat less rounded or more flattened figure of the labrum. It may, however, prove to be a distinct species, when many specimens of chersina can be had to compare with it.

H. ALTERNATA, NOB. and H. ALBOLABRIS.—On our return homewards, these two species were not found until we arrived in the secondary country towards the eastern extremity of Lake Superior.

H. THYROIDUS, NOB.—Falls of Niagara.

H. LIGERA, NOB.—North-west Territory.

VITRINA PELLUCIDA of Authors.—This shell was first found near Coldwater Lake in latitude 48¾ north, under stones, fallen timber, &c. It afterwards frequently occurred in similar situations, until we approached Lake Superior, when it was no more seen. Like its congeners, the inhabitant is much too large to retract within the shell, and a great portion of the body is therefore constantly exposed. No species of this genus has been hitherto found in this country; the discovery of this shell is therefore the more interesting. The specimens which we collected do not appear to differ in any respect from those of Europe.

BULIMUS LUBRICUS of Authors.—The species occurred under stones, &c., on the shores and islands of Lake Winnepeck and Lake of the Woods. It is altogether similar to the European specimens of this species, excepting that the labium is somewhat more transverse.

Pupa modesta.—Shell dextral, suboval, minutely wrinkled; apex obtuse; whorls six; umbilicus distinct; aperture obliquely subovate; labium with a prominent, compressed, semioval tooth, equidistant from the extremities of the labrum, and a somewhat conic one rather below the middle of the columella; labrum not reflected, joining the preceding whorl at its upper extremity with a curve; bidentate, lower tooth placed opposite to that of the middle of the labium, the others smaller and placed a little above.

Length less than one-tenth of an inch. Inhabits the North-west Territory. Pl. 15, fig. 5.

Var. a.—The smaller tooth of the labrum obsolete or wanting.

Succinea avara.—Shell suboval, pale reddish-yellow, subdiaphanous, fragile, covered with an earthy crust; whorls three, minutely wrinkled; body whorl very large; spire small; aperture large, subovate, about two-thirds of the whole length of the shell.

Length three-twentieths of an inch. Inhabits the North-west Territory.

This small species of Succinea occurs in humid places, very frequently under stones and near the water. The shell is always completely encrusted with a coating of earth. It may at once be distinguished from either the *ovalis* or *campestris* by its very small size. Pl. 15, fig. 6.

S. obliqua.—Shell oblong-oval, nearly pellucid, pale amber-colored; whorls three, very obliquely revolving, distinctly wrinkled; spire a little prominent; aperture suboval, somewhat oblique.

Length seven-tenths of an inch; length of the aperture less than one-half inch. Inhabits Pennsylvania.

Of this fine species, found in the vicinity of Philadelphia, many specimens were some time since presented to the Academy Nat. Sc. by Messrs. Hyde and Mason, and we obtained a specimen near the Falls of Niagara. It may at once be distinguished from either the *ovalis* or *campestris* by the much greater obliquity of the revolutions of its whorls. It is very much like the HELIX *putris* of Linn., but it is more than double the size of that species. It may, however, be a variety of that shell. Pl. 15, fig. 7.

(Say's American Conchology, vol. i., No. 11, April, 1831.)

Helix albolabris.—Shell convex, imperforated, immaculate, pale reddish brown; volutions about five and a half, with rather obtuse wrinkles, crossed by very minute lines, more obvious on the body whorl than on the spire; suture distinct, not very deeply impressed; labrum abruptly contracting the mouth, rather widely and abruptly reflected, flattened in the plane of the mouth, white, rather deeply and abruptly more arquated at base. Plate 13, fig. a.

Synonyms.

Helix albolabris, Nobis—Nobis. Am. Ed. of Nichols. Encycl., vol. iv. Ferussac, Hist. Nat., pl. 43, f. 1 to 5.

Cochlea virginiana, subalbida, mediocris, circiter quinis orbibus, parum altis ad claviculam circumscripta. Lister, Synops. pl. 47, f. 45.

This is one of our most common species, less abundant, however, in the Western than in the Eastern portion of the United States; and is an inhabitant of an extensive region, extending from Canada to South Carolina, whence an individual was sent me by the late Mr. Elliott; and it is probably found even in Florida. It belongs to the genus *Acavus*, *Montfort*, which he separates from Helix, in consequence of being destitute of umbilicus.

A species of the Linnæan Genus *Acarus* infests the animal. I have frequently seen this little active parasite, running out and in the respiratory cavity, when the orifice was open to receive the air. Sometimes it is excluded for a few moments by the closing of the orifice, but it courses nimbly about until another dilatation of the pulmonary aperture receives it into the interior. An analogous species inhabits the Helix nemoralis, L. of Europe, according to Kirby and Spence.

H. thyroidus.—Shell rather thin, convex, umbilicate, pale reddish brown, immaculate; volutions five, wrinkled; suture distinct, but not very deeply impressed; labrum abruptly contracting the aperture, rather widely reflected, flattened in the plane of the mouth, excepting the superior third, and white; umbilicus narrow, distinct; labium with an oblique white tooth, rather above the middle, and not very prominent.

SYNONYMS.

Helix thyroidus.—Nobis, Journ. Acad. Nat. Sc. vol. i., p. **123.**
Nicholson's Encycl. (Am. edition.)
Ferussac, Tabl. System, p. 33.

Cochlea umbilicata, capillaceis stryis per obliquum donata. Unico dente ad fundum oris. List. Synopsis Conch. pl. 91, f. 91.

The following synonyms are from Ferussac, Tab. Sys. Petiver, Gazophyll. t. 405, f. 4—Philos. Trans. vol. xx., p. 375.

Cochlea terrestris Virginiana, &c. Schroter, Enleit, ii., p. 192, No. 60.

A very abundant species, much more numerous than the preceding in this region. It has certainly a general resemblance to the *albolabris*, but it is smaller, always umbilicated; the labrum, near its junction with the penultimate whorl is not so flatly reflected, and the tooth of the labrum is very conspicuous. It belongs to Montfort's genus *Cepolis*, plate 13.

GLANDINA TRUNCATA.

SYNONYMS.

Buccinum striatum. Chemnitz, ix., t. **120, fig. 1028, 1029,** (Ferussac.)

Bulla truncata. Gmel. Dillwyn, (Fer.)

Polyphemus glans. Nobis. Nicholson's Encycl.

Helix rosea. Ferussac.

è flumine quodam Carolinæ. List. Conch. 1059, fig. 4.

Shell pale reddish brown, or slightly tinted with rosaceous, often deepest on the spire, gradually becoming paler to the aperture; spire rather prominent, somewhat mamelary at tip; volutions, five or six, very obviously wrinkled; two or three apicial volutions, almost destitute of wrinkles; suture well defined, irregularly crenulated; columella decidedly incurved.

When in the Sea Islands of Georgia and Florida with Mr. Maclure, we found this species in great abundance in marshy districts immediately behind the sand hills of the coast. In Florida they also occurred on elevated mounds of oyster shells, called hammocks, and generally in such situations as are tenanted by *Succinea campestris, Nob.* On these elevations they were generally small, translucent, and of a fragile consistence, and we observed that they obtained their greatest development only in the low marshy places. Mr. Elliott, of Charleston, South Carolina, since favored me with living specimens from near that city, where, he informed me, they are not very abundant. These individuals refused such vegetable food as I could procure for them, (in December,) but one of them devoured the animal of a Helix which was in the vessel that contained them. Lister's figure above quoted is referred to with doubt by Ferussac, in his Tab. Syst. p. 57, for his Helix goniostoma.

In Lesueur's collection are specimens which he found at St. Francisville on the Mississippi, and Mr. Titian Peale found specimens on the Florida Keys. So that, taking the above-mentioned localities into consideration, this shell seems to be an inhabitant of the whole alluvial region, from at least the middle of South Carolina to the Mississippi, and perhaps even still farther south.

In the American edition of Nicholson's Encyclopædia I published an account of this species under the name of Polyphemus glans; I supposed it to be that species, as Montfort says it lives in the interior of Louisiana. But Ferussac says that our shell is not the *glans* of Bruquière, which is not an inhabitant of Louisiana, but of St. Domingo. In his general observations, as well as in a letter to me, he says it is the Buccinum striatum of Chemnitz, and Bulimus striatus of Bruquière; whereas, in his enumeration of the species, he rejects the name of *striatus* entirely, and places those two synonyms under two separate species, to which he gives new names. I think, however, that this name cannot, in justice to Muller—from whom Bruquière adopted it—be applied to our species, inasmuch as he had reference to the South American species. As it is, therefore, neither the *glans* nor the *striata*, I adopt the name applied by Gmelin, for which I am indebted to the synonyms collected by Ferussac, on whose accuracy and opportunities for comparison in this instance I wholly rely, when, in my own opinion, the reference would, but for this authority, be doubtful.

No. 4.—March, 1832.

Helix clausa.—Pl. 37, fig. 1. As in Journ. Acad.

H. elevata.—Pl. 37, fig. 2. As in Journ. Acad. Synonym H. Knoxvilliana? Fer. Tab. Syst. p. 33.

H. **PROFUNDA**.—Plate 37, fig. 3. As in Journ. Acad. My description of this shell was published in the year 1821. Lamark's description of H. Richardi did not appear until April, 1822, but he quotes, by anticipation Ferussac, Hist. des Mollusques, No. 174, for the specific name, which was, however, not then published in that work, but appeared in the Tableau Systematique of the latter author in the earlier part of the same year. The name of *profunda* has therefore the priority, and consequently must be adopted.

No. 5.—August, 1832.

HELICINA ORBICULATA.—Plate 46, f. 1, 2, 3. Same as Oligyra orbiculata, Nicholson Encycl.

H. **OCCULTA**.—Pl. 46, f. 4, 5, 6. Same as Trans. Journ. Med.

No. 6.—April 1834. On the cover.

It seems probable that **HELIX IRRORATA** is a variety of H. lactea, Müll., with which I compared it when describing it.

CARACOLLA HELICOIDES, Lea.—Trans. Am. Phil. Soc. vol. iv. N. S., is variety a, of Helix palliata, Say, H. denotata, Fer.

HELIX CAROLINENSIS, Ibid.—Corresponds by descriptions and figures with H. appressa, Say, Var. a.

No. 5 and 6.—Descriptions of some new Terrestrial and Fluviatile Shells of North America, &c.

HELIX LUCUBRATA.—Shell subglobose, depressed, reddish brown, polished, subtranslucent; whorls over four, much wrinkled; spire much depressed, convex; suture moderate; beneath paler; umbilicus open, rather large; aperture nearly orbicular; labrum simple.

Greatest width one inch. Inhabits Mexico. Closely allied to H. inornata, Nob., but the umbilicus is much larger, and the aperture is more accurately rounded; the color is nearly the same, excepting that in the present it is of a deeper shade.

H. **SUPPRESSA**.—Shell subglobose, depressed, pale horn color, polished, somewhat pellucid; body whorl opake, whitish near the aperture; volutions six, wrinkled; spire convex; aperture sublunate, narrower beneath; within, a prominent tooth near the base, distant from the margin; labrum simple; umbilicus rather small, orbicular, profound; region of the umbilicus indented.

Greatest breadth more than one-fifth of an inch. Inhabits Pennsylvania.

I found a few specimens of this shell on the farm of my friend Mr. Reuben Haines, at Germantown.

With the exception of the size and the armature of the throat, it is somewhat of the habit of *H. ligera*, *Nob.;* but the opacity of the body whorl near the aperture, is much more remarkable. These characters, combined with that of the tooth, will readily distinguish this species from any other.

POLYGYRA FATIGIATA.—Shell convex beneath, nearly plane above, the spire being hardly perceptibly elevated; whorls a little over six, compressed, acutely carinated, crossed by numerous raised, equidistant lines, which form grooves between them; superior *surface* not at all convex; aperture subreniform; labrum reflected, regularly arctuated, describing two-thirds of a circle; within two-toothed, lower tooth conic obtuse, superior tooth compressed, transverse, placed further within the aperture than the inner one, from which it is separated by a wide and deep and obvious sinus; labrum with a very profound duplicature, which has a concave surface, but with no emargination near its acute tip; beneath exhibiting only two volutions, without any distinct groove on the external one near the suture; beneath the carina the elevated lines are obsolete.

Greatest breadth seven-twentieths of an inch.

Found by Mr. Lesueur in the vicinity of New Harmony. It is very closely allied to that species which I described under the name of *plicata;* the character of the mouth is very similar, but in that shell, such is the situation and form of the teeth of the labrum, that at first view they do not seem to be separated by a remarkable sinus, and the inferior tooth is compressed and larger than the other; the duplicature of its labium is emarginate near the tip. The present species is also larger, carinated, and the elevated lines are obsolete below the carina.

HELICINA OCCULTA.—Carinated; carina almost concealed on the spire, and nearly obsolete on the body whorl; whorls about five, carinate, or with an acute shoulder, which is almost concealed on the spire by the suture; it becomes more obtuse and almost obsolete, or even impressed on the body whorl, but near the labrum it is again very obvious; the whole surface has slightly elevated, somewhat regular lines, forming grooves between them across the whorls, and there is an appearance of revolving lines on the body whorl, particularly beneath; labrum entire, thick, a little reflected, obtusely a little more prominent towards the base, but not angulated.

All the specimens I have found are dead and bleached. They occur abundantly in the ragged and abrupt "bluff," half a mile below New Harmony, near the river bank, with many Helices that are commonly found in the Western States. They are much of the same size or even a little larger than the *Helicina orbiculata*, *Nob.*, which species is destitute of carina or of prominent wrinkles or elevated lines, its labrum is reflected, but not thickened, with a distinct angle near its base.

SUCCINEA VERMETA.—Shell suboval, yellowish, very thin and fragile, somewhat diaphanous, with nearly three very oblique volutions; whorls very much rounded, wrinkled; suture very profoundly impressed; spire rather prominent and acute; aperture ovate, the superior termination rounded.

Inhabits margins of ponds near New Harmony.

This species is remarkable for the very deep indentation of its suture, giving to the whorls of the spire the appearance of being almost separated from resting on each other; and by this character it may be readily distinguished from the other species of this country. It was found by Dr. Troost.

S. UNDULATA.—Shell suboval, pale yellowish, translucent, fragile; volutions three and a half; spire moderate, wrinkles obsolete, body whorl wrinkled, or rather slightly undulated; columella narrowed, so as to exhibit the appearance of an interior umbilicus, when viewed with a lens from the base.

Length about one-half inch. Inhabits Mexico.

Very similar to *S. ovalis*, Nob., but the suture is not so deeply indented, and it has from one-half to three-fourths of a whorl more; the surface of the body whorl also is rather undulated than wrinkled. One of the individuals lived nearly twelve months in my cabinet, without any apparent sustenance.

Pupa placida.—Shell dextral, cylindric-conic, pale yellowish horn color; apex whitish, obtuse; whorls six and a half, somewhat wrinkled; suture moderately impressed; aperture unarmed, longitudinally oval, truncate a little obliquely above by the penultimate volution; columella so recurved as almost to conceal the umbilicus; labrum, with the exception of the superior portion, appearing a little recurved when viewed in front, but when viewed in profile, this recurvature is hardly perceptible; umbilicus very narrow.

Length over three-tenths of an inch. Inhabits Massachusetts.

For this shell I am indebted to Dr. T. W. Harris, of Milton, from whom I have received many interesting species of our more northern regions. At first view it might be mistaken for the *P. marginata*, *Nob.*, but it is quadruple the size, and the labrum is not reflected and thickened.

Bulimus alternatus.—Ovate conic, with alternate gray and brownish longitudinal vittæ. Inhabits Mexico.

Shell umbilicated, ovate-conic, with longitudinal lines, subequal, gray and light brownish vittæ; the brown is paler, almost approaching in some instances a drab; the white vittæ consists of more or less confluent, transverse, irregular lines, and small spots; whorls about six, a little convex; suture not profoundly impressed; labrum (in some specimens) with a thickened line or rib on the inner submargin; within white, with a perlaceous tinge.

Length one and one-fifth of an inch. Greatest breadth seven-tenths. This species appears to be not uncommon in Mexico, as many specimens were sent me by Mr. Maclure; but from what particular locality, I know not.

B. undatus, Brug.—Occurs in some parts of Mexico. I found a specimen on the road from Vera Cruz to the city. The late Mr. Elliott, of Charleston, presented to me a Bulimus which I described under the name of *reses;* but on comparing it to the present species, I think it may be considered as a variety; it is rather less ventricose, the longitudinal lines are very slender and pale, and the transverse lines much more distinct. It inhabits trees on the south part of Florida.

B. serperastrus.—Elongate subovate, about six banded. Inhabits Mexico. Shell conic or elongate subovate, umbilicated; whitish or white, with about six interrupted, more or less confluent, dark rufous bands; spire as long, or rather longer than the aperture, with three or four widely interrupted bands; suture not very deeply impressed; whorls a little convex; labrum widely curved a little outwards; columella rather wide at its origin.

Length one and a half inch; greatest breadth, excepting the lip, (parallel, of course, to the suture,) seven-tenths of an inch. I obtained it on the side of the road between Vera Cruz and Mexico.

B. EMEUS.—With crowded, minute, transverse striæ. Inhabits Mexico. Shell conic or elongate ovate, slightly angulated on the middle of the volutions, and covered with minute, undulated, impressed, capillary lines; whitish, with maculated bands; suture not deeply impressed; aperture shorter than the spire; labrum exteriorly simple, interiorly with a thickened submargin; columella short, recurved; umbilicus small, but distinct; spire with the angulation concealed by the suture; body whorl with the angulation almost obsolete.

Length thirteen-twentieths of an inch; greatest breadth (parallel to the suture) three-tenths. I found this species on the road from Vera Cruz to Mexico. As I possess only the "Tableaux Systematiques" of Ferussac's splendid work, the preceding species of Bulimus are offered with considerable hesitation; but those who possess that work can readily detect an error, if there be one.

NOTE.—Through the kindness of Dr. Meigs, the obliging Librarian of the Academy, I have been able to have impressions taken of Mr. Say's plate of Helix clausa.

DESCRIPTIONS

OF

FLUVIATILE AND MARINE SHELLS

OF

NORTH AMERICA.

BY

THOMAS SAY.

NEW YORK:
H. BAILLIERE, 290 BROADWAY.
LONDON:—H. BAILLIERE, 219 REGENT STREET.
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MADRID:—C. BAILLY-BAILLIERE, CALLE DEL PRINCIPE.
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FLUVIATILE AND MARINE SHELLS

OF

NORTH AMERICA.

[No. 1. The Article CONCHOLOGY, from the third American edition of Nicholson's Encyclopœdia, Philadelphia, 1819.*]

We here introduce descriptions, illustrated by figures, of a few of the land and fresh water shells of the United States, induced particularly by the silence with which these productions of our country are regarded in the Systema Naturæ. In the extensive work of Lister, entitled "Historiæ sive Synopsis Methodicæ Conchynorum," &c., several of our shells are figured, and, to a few of them, short descriptions are annexed, not, however, designated with specific names; of this work we have availed ourselves, from quotations and references.

It will be readily perceived by the conchologist, that in the arrangement we have deviated from the course pursued in this work relative to the inviolability of the Linnæan system, so as to introduce some of the more recent improvements in the construction of genera, and that some considerable modifications are ventured to be made in this article.

We think it proper to state, in addition to the above remarks, which were annexed to the descriptions in the first and second American editions of this work, that several species and three new genera are now added, which, with the exceptions of a small number of new species now first published, we have previously given to the world, in several detached essays, in the pages of the Journal of the Academy of Natural Sciences, in the collection of which Academy all the specimens are preserved.

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*[The extracts are taken from the third edition. The previous editions are referred to in the Index.—ED.]

Genus **PLANORBIS**.—Shell discoidal; spire depressed, or concave; aperture oblique, rounded, broader than long, visible from above, and emarginated by the convexity of the penultimate whorl; lips not reflected; whorls lateral.

Animal aquatic, with two filiform tentacula, having the eyes placed at the inner base; operculum none.

Obs. The species for which this genus was constructed were included by Linnæus in his Genus Helix. The spire is sometimes profoundly sunk, so much so as to be with difficulty distinguished from the base.

PLANORBIS TRIVOLVIS.—Shell sinistral, pale yellow, brownish or chestnut color, subcarinate above and beneath, particularly in the young shell; whorls three or four, striate across with fine, raised, equidistant, acute lines, forming grooves between them. Spire concave; aperture large, embracing a considerable portion of the body whorl, within bluish white; lip a little thickened internally, and of a red or brownish color, vaulted above; umbilicus large, exhibiting the volutions. Length one-fourth of an inch; breadth one-half of an inch.

Animal aquatic, dark ferruginous, with very numerous, confluent, pale yellowish points; tentacula long, setaceous, with confluent points; foramen on the left side.

That ingenious naturalist, Mr. C. A. Lesueur, found this species of a much larger size in French Creek, near Lake Erie; breadth three-fourths of an inch nearly; color almost black, purplish red within the mouth.

Cochlea, trium orbium. Lister. Conch. tab. 140. *fig.* 46.

Lister figures this shell pretty accurately, and it is referred to in Gmelin's Edit. of Syst. Nat. p. 3615, as *Albella*, but it is certainly not that species. Plate 2, fig. 2.

PLANORBIS BICARINATUS.—Shell sinistral, pale yellow or brownish, subcarinate above, and beneath translucent. Spire retusumbilicate, forming a cavity as deep as that of the base. Aperture large, embracing a considerable portion of the body whorl, and much vaulted above. Within red brown, with two white lines corresponding with the carina. Whorls three, wrinkled, and with minute revolving lines. Length one-fourth of an inch; breadth nearly half an inch.

Inhabitant aquatic, ferruginous, with numerous yellowish dots; tentacula dotted and flexuous. Plate 1, fig. 4.

Resembles the preceding species in its outline, but differs from that shell in the remarkable umbilicate appearance of its spire; it is also destitute of those fine parallel raised lines, and is furnished with minute striæ, never visible in *P. trivolvis;* the superior part of the lip is more vaulted, and the carina more visible.

PLANORBIS PARVUS.—Shell horn color or blackish; whorls four, crossed by minute wrinkles; concave above and beneath, and equally exhibiting the volutions, body generally subcarinate on the margin; lip rounded, and not vaulted above nor thickened; mouth within bluish white. Breadth one-fifth of an inch.

Animal aquatic, brown, tentacula long, filiform, whitish, with a darker central line, tail rounded.

Probably the same species with that figured by Lister, tab. 139, fig. 45; it is very numerous in the Delaware, in company with the two preceding shells. Plate 1, fig. 5.

Genus LYMNÆA.—Shell subovate, oblong, or somewhat tapering. Aperture entire, longitudinally oblong, the right lip joined to the left at the base, and folding back on the pillar.

Obs. These shells, as well as those of the preceding genus, were placed by Linnæus with his *Helices*, but they offer characters sufficiently distinct, particularly their inhabitants.

LYMNÆA CATASCOPIUM.—Shell thin, horn color, red or blackish; whorls four or five, the first large, and generally the remainder darker and rapidly decreasing to an acute apex, and wrinkled across; aperture large, oval, not three-fourths the length of the shell. Length seven-tenths of an inch, breadth nearly one-half of an inch.

Inhabitant yellowish, sprinkled with small, often confluent, paler dots; tentacula two, broad, pyramidal; eyes black, placed at the base of the tentacula; tail obtuse, rounded or emarginate, not so long as its shell. Plate 2, fig. 3.

It is with much hesitation that we adopt a new specific name for this shell, having always heretofore considered it as the same with the *L. putris* of authors, (which has been, perhaps, mistaken for the *Helix limosa* of Linné.) As far as we can ascertain, the principal difference appears to be in the more oblique revolution of the whorls in the European species, and the more abrupt termination of the spire.

Inhabits the Delaware river and many other waters of the United States, in considerable numbers, and may be found plentifully, during the recess of the tide, about the small streams through which the marshy grounds are drained, in company with several other shells. When kept in a vessel of water, like others of its kind, it will proceed not only up the sides of its prison, but also along the surface of the water, the shell downward, with regularity of motion and apparent ease. In this case the reverted base of the animal is concave; and as the surface of the water is compelled to a corresponding concavity, the pressure of the atmospheric column will account for the sustentation of the animal (whose specific gravity is much greater than that of the water) in this singular position. It occasionally crawls to the margin of the water to inhale a supply of air; with this object the foramen is protruded to the surface, and opened with an audible snapping sound, similar to that produced by the resilience of the nib of a pen.

There is a species of this genus that we have named LYMNÆA JUGULARIS; and which, in consequence of its having been found but once, must be considered as a doubtful inhabitant of the United States. It may be thus described. Shell tapering; whorls about six; suture not deeply impressed; aperture hardly equal to half the length of the shell, but little dilated; within brownish, particularly upon the column, which is contracted in the middle; outer lip white, and almost imperceptibly repand within; umbilicus very distinct. Length one inch.

A specimen was also brought from the West Indies by Mr. L'Hermenier of Charleston.

LYMNÆA HETEROSTROPHA.—Shell sinistral, subovated; color, pale yellow, chestnut or blackish; whorls four, the first large, the others very small, terminating rather abruptly in an acute apex; aperture large, somewhat oval, three-fourths of the length of the shell, or rather more; within of a pearly lustre, often blackish; lip a little thickened on the inside, and tinged with dull red.

Inhabits with the first species, and almost as numerous. Plate 1, fig. 6.

Animal resembles that of *L. catascopium*, but is of a darker color and longer than its shell, the tentacula also are longer, and setaceous; tail acute.

The mantle is trifid at the base of the pillar lip, and at the upper corner of the aperture; deposits eggs the beginning of May; eggs enveloped by a transparent gelatinous substance; the nucleus, after a few days, appears of a pale or milk white color, and not so well defined as those of *L. catascopium*.

PALUDINA SUBCARINATA.*—Shell with three whorls, which are rounded, and subcarinated, reticulated with striæ and wrinkles, sometimes without the striæ; suture deeply impressed; apex truncated and re-entering; aperture more than half of the length of the shell, oval; elevated lines or subcarina on the body two, three, and sometimes none. Length half of an inch; breadth four-tenths.

Inhabits with the preceding species.' Plate 1, fig. 7.

Animal viviparous, with a chestnut, coriaceous operculum, white, spotted with orange; head pale orange, not extending beyond the shell; tentacula darker, short, subulate; eyes situated at their base, elevated, black and conspicuous; base of the animal much advanced, broad, truncate, purplish before, tail rounded behind.

PALUDINA VIRGINICA.*—Shell tapering, olive, horn color or blackish, under the epidermis tinged with green; whorls seven, but little rounded, crossed by curved wrinkles on the spire, and reclivate ones on the body; a dull red line revolves near the base of the whorls, and on the middle of the body a reddish-black broader line, from within the upper angle of the aperture, runs parallel with the other, and terminates near the base. Aperture subovate, more than one-third as long as the shell, lip not thickened, but dilated at the base. Length one inch; breadth two-fifths of an inch. Plate 2, fig. 4.

Lister's Conch. tab. 117, *fig.* 7. The basilar part of the lip in Lister's figure is deficient.

Inhabitant bluish-white beneath, with orange clouds each side of the mouth; above pale orange, shaded with dusky and banded with numerous black interrupted lines; mouth advanced into a rostrum as long as the tentacula, which are darker at the base, and setaceous; base of the animal with an undulated outline.

It often occurs in our rivers, and is readily discoverable in clear water, by the channel it forms in the mud.

*[In the earlier editions of Nich. Enc. this species was described under Lymnæa.—ED.]

Specimens of this shell, brought from the Lakes and their vicinity, by Mr. Lesueur, had the revolving lines very obscure or obsolete.

Lister's lower figure of tab. 109 also resembles this shell.

PALUDINA VIVIPARA.*—Shell subconic, with six rounded whorls; suture impressed, color olivaceous or pale, with three red-brown bands, of which the middle one is generally smallest; whorls of the spire with but two, aperture suborbicular, more than half the length of the shell. Plate 2, fig. 3.

Donov. Brit. Shells. tab. 87, *Helix vivipara.*

Lister. Conch. tab. 126, *fig.* 26; *Cochleæ vivipara fasciata.*

It is doubtful whether or not this is the same as the *vivipara*, but it certainly approaches very near to it; we, however, refer it to that species until a specific difference can be indicated, which at present we are unable to do; the spire of this species is rather more obtuse, and the suture not so deeply impressed, as in the figures of the European specimens above mentioned.

PALUDINA DISSIMILIS.—Shell conic, dark horn color or blackish; whorls about three, with obsolete, distant wrinkles, and an abrupt, acute, prominent carinated line, which revolves on the middle of the body whorl, and is concealed on the spire by the suture; suture not indented, aperture oval, half as long as the shell, within sanguineous beneath the carina, and at base and apex; columella emarginated, a little flattened at the base. Length about two-fifths of an inch.

Var. *a.* Carina obsolete on the ventral portion of the body whorl.

Var. *b.* Carina distinct on the spiral whorls, owing to their more oblique revolution.

The surface of the whorls of the spires is generally covered with inequal calcareous matter, resembling a fortuitous accumulation of mud or earth on that part, but which appears to be superposed by the animal, probably with the intention of retaining a proper specific gravity. The apex is often truncated.

This species was found by Mr. Thomas Nuttall, during a journey to Pittsburg.

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*[In the earlier editions of Nich. Enc. this species was described under Lymnæa.—ED.]

PALUDINA DECISA.—Shell subconic, olivaceous, truncated at the apex; whorls four, wrinkled across and banded with minute distant striæ; terminal whorl very short; suture impressed and conspicuous; aperture subovate, more than half of the length of the shell, entire; within bluish white. Operculum coriaceous, elevated on the disk and concentrically striated. Length one inch; breadth three-fourths. Plate 2, fig. 6.

Cochlea virginiana é flava viridescens, non fasciata. Lister, Conch. tab. 127, *fig.* 27.

The young shell resembles *L. subcarinata*, but the whorls are destitute of an elevated line, the suture is not so deeply impressed, and the aperture is narrower above.

Animal with the foot larger, suddenly a little dilated each side before and truncate in front, widely; foot livid, thickly maculated with irregular orange spots, which are much smaller beneath; head and tentacula spotted with orange; eyes on a prominent angle, at the external base of the tentacula.

I found the animal viviparous in October; the young shell had then three complete whorls, which were spirally striated.

Genus UNIO.—Shell transverse; with three deeply impressed cicatrices; hinge with a strong irregular tooth, and anterior lamelliform, elongated one in one valve, inserted between two corresponding teeth and laminæ of the other.

Obs. The shells of this genus inhabit fresh water; they were placed by Linnæus with the *Myæ,* from which they differ in very essential particulars; as is obvious from the number, situation, and figure of the teeth, and the organization and habits of the included animal.

UNIO CRASSUS.—Shell varying in form and surface; remarkably thick and ponderous; epidermis horn-color, different shades of brown or black; beaks carious, often much eroded, pure perlaceous, or silvery white, more prominent as the shell approaches an orbicular form; primary teeth, not very oblique. The dimensions of three specimens were as follows:

Length, 3 inches; breadth, 4½
2 " " 4½
2 " " 2

Plate 1, fig. 8.

Musculis brevoir, admodum crassus, ex interna parte subroseus, *cardine incisuris minulis exasperato. Lister, Conch. tab.* 150, *fig.* 5.

Encyc. Method. vol. 63, *tab.* 249, *fig.* 1.

By these dimensions it will appear to vary very considerably, being a regular oval; much elongated; ovate or nearly orbicular; sometimes with two or three longitudinal or oblique waves; rarely tuberculate; within perlaceous or red purple; teeth very thick, crenated, and resembling those of the next species. It is very probable that we have here included several distinct species, but at present we are not sufficiently well acquainted with the inhabitants to separate them. Gmelin refers to Lister's figure for his *Mytillus cygneus*, but we can discover no resemblance between them.

Found plentifully in the river Ohio and its tributary streams.

UNIO PLICATA.—Shell suboval, thick and ponderous; valves with two three more conspicuous undulations, which are profound, very oblique, continued to the anterior basal edge, and not arising from the umbo; umbo decorticated, sometimes much eroded; within perlaceous, distinctly impressed by the undulations.

This species may be distinguished from any of the numerous varieties of the preceding species by the oblique direction of the undulations, of which those nearest the base are largest, and seem to originate behind the beaks.

It was found by Mr. Lesueur in Lake Erie, and was communicated by him under the above name.

UNIO PURPUREUS.—Shell suboval, somewhat compressed, with smaller wrinkles placed between larger ones, color dark brown; beaks placed nearer one end, very carious, not prominent, generally the epidermis and pearly strata are removed, exhibiting a wax-yellow ground; within reddish purple, varied with green, no cavity under the beak; teeth resemble the preceding. Length, one inch and five-eighths; breadth, two inches and four-fifths. Plate 3, fig. 1.

This species is more numerous in the rivers Delaware and Schuylkill than any other of the genus: in the rivers of the Southern States it arrives at a more considerable magnitude, measuring sometimes four inches, or more, in breadth. These large specimens, and sometimes the smaller ones, are a little shortened on the base opposite to the lamellar teeth.

UNIO OVATUS.—Shell subovate, convex, not remarkably thick, horn color, not radiated; flattened and fuscous on the anterior margin; beaks decorticated, placed nearer central; umbo prominent; within parlaceous; cavity of the beaks capacious; primary teeth very oblique, almost parallel to the posterior margin and much compressed. Length, three inches; breadth, four inches.

Inhabits the Ohio river and its tributary streams.

Encyc. Method. vol. 63, *tab.* 248, *fig.* 5. Plate 2, fig. 7.

Unio cariosus.—Shell moderately thick, much longer before, and shorter behind the beaks; olive green, sometimes radiate with green, and with fine interrupted wrinkles placed in longitudinal rows, but usually the green radii are wanting, or only visible in the anterior margin, and the wrinkled radii indistinct; in older shells the middle of the base is a little shortened; beaks somewhat prominent, rather distant, carious, exposing a wax-yellow surface; concavity bluish-white, teeth resembling those of the preceding species, but the primary ones are not so much compressed or oblique; they are often sub-conic and crenate. Length one inch and a half: breadth, two and a quarter. Plate 3, fig. 2.

Musculus latior, subfuscus, Cæruleis lineis Radiatus. Lister, Conch. tab. 152, *fig.* 7.

Martini's figure of *U. pictorum* resembles this shell in outline. Vol. 6.

Very common in the Delaware and Schuylkill rivers.

Gmelin, Ed. Syst. Nat. p. 3220, refers to Lister's figure as a variety of *Mya radiata*, a native of Malabar: but we have ventured to consider it a distinct species; the largest we have seen was brought from Wilkesbarre by Mr. Lard. Vanuxem, in length two and one-fourth, breadth three and three-fourths inches. The animal rarely infested by a parasite. See the article *Hydrachne.*

Unio ochraceus.—Shell thin, fragile, translucent, subovate, hinge margin somewhat rectilinear, color from a pale reddish orange to a pale olive; generally radiate with dull green and with minute wrinkled radii; anterior margin very finely wrinkled; beaks decorticated and approximate, with two or three small concentric undulations; within bluish-white or ochraceous, tinged with red near the base; teeth very oblique and much compressed. Length one inch and a quarter: breath, one and three-quarters. Plate 2, fig. 8.

This shell, in many respects, resembles the preceding, with which it is found, but is not so obtuse in front, and is much less rounded at the hinge margin it is also much thinner, and the beaks approach each other more closely.

UNIO NASUTUS.—Shell thin, oblong, compressed, rostrated, horn color or fuscous, with fine crowded wrinkles obscurely radiate with green; within bluish-white; beak cavity hardly any; teeth crenate. Length, one inch and one-eighth: breadth, two and three-fifths.

Very common in the Delaware and Schuylkill. Plate 4, fig. 1.

Musculus fuscus, augustior, exaltera parté Cuneatim protensus. Lister, Conch. tab. 151, *fig.* 6.

UNIO ALATUS.—Shell moderately thick, sub-triangular, generally gaping at the posterior part of the base, fuscous, wrinkled; beaks not prominent, placed very far back and decorticated; base almost rectilinear; hinge margin remarkably oblique, rising near the termination of the cartilage into an alated projection, and forming almost a right angle with the inferior slope, which is nearly equal in length; within red-purple, often with numerous tubercles, which, upon the gaping limb, are confluent; cicatrices very rough; teeth crenate, the external laminated one obsolete, only one in each valve being very perceptible. Length, including the projection, three inches and four-fifths; breadth, five inches and a half. Plate 4, fig. 2.

Encyc. Meth. vol. 63, *tab.* 248, *fig.* 1, *a*, *b?*

Mr. Lesueur found this species in Lake Erie, very thin and fragile.

The specimen from which this description is taken, and also the next species, were purchased by Mr. Joseph Watson, at the sale of the late Professor Barton's collection, and by him presented to the Academy of Natural Sciences of Philadelphia. There is also a specimen in the Museum of Mr. Peale.

UNIO CYLINDRICUS.—Shell very thick, sub-cylindrical, emarginate before, pale horn-color varied with greenish; hinge margin undulated obliquely across the wrinkles, rough on each side, rectilinear and parallel to the base; beaks broad and prominent, with a deeply impressed posterior lunule; within perlaceous, teeth thick and crenate; cavity of the beaks very deep. Length, one inch and three-tenths; breadth, three inches and one-fifth. Plate 4, fig. 3.

From the collection of the late Professor Barton; it is said to be found in the river Wabash.

UNIO UNDULATA.—Shell thin, convex, suboval, greenish or olivaceous, with obtuse concentric wrinkles and radiate with green, a little uneven before; beaks prominent, acute, approximate, decorticated, and with four or five large obtuse, distant undulations, disappearing towards the basal margin; within bluish-white, cavity deep; teeth one in each valve, think and strong; that of the left valve crenated, of the right valve somewhat bifid, and gradually sloping to the hinge margin. Length, three-fifths of an inch: breadth, nine-tenths of an inch. Plate 3, fig. 3.

Found in the Delaware and Schuylkill rivers, but is rather rare, and resembles *Anodonta undulata.*

This genus, in conjunction with *Dipas* of Leach, will complete the chain of connection between the two genera *Unio* and *Anodonta*. It corresponds with these genera, in the number of its cicatrices, but is separable from *Anodonta*, by its primary tooth; from *Unio* by being destitute of the lamelliform teeth; and from *Dipsas*, also, by the last mentioned character, as well as by the presence of a primary tooth, which is wanting in that genus.

This new genus we proposed in the former editions of this work, when describing the UNDULATA, under the name of MONODONTA; but as the same term has been applied to a genus of univalves, I have substituted that of ALASMODONTA.

Genus ANODONTA.—Shell transverse, with three obsolete muscular impressions; hinge simple, destitute of teeth.

Obs. The shells which constitute this genus were arranged by Linnæus and many other writers, under the genus *Mytillus*.

ANODONTA CATARACTA.—Shell thin, fragile, translucent, oblong-oval, convex, covered with a green olive, radiated, epidermis, within perlaceous; beaks nearer central, frontal margin brown. Length, two inches and two-fifths: breadth, four inches and a half concavity of one valve nearly seven-eighths of an inch. Plate 3, fig. 4.

This large muscle occurs in lakes, milldams, &c., and bears some resemblance to the *A. anatinus*, of Europe.

Found by Mr. I. Lukens, in the deep part of a mill-dam.

ANODONTA MARGINATA.—Shell very thin, fragile, somewhat compressed, translucent, subovate; epidermis green olive, paler on the disk and greener before; anterior margin fuscous; beaks nearer the posterior end; within bluish-white, edged with whitish. Length, one inch and a half; breadth two inches. Plate 3, fig. 3.

Resembles the preceding, but is more ovate, and the beaks are placed much further back; it is very common in our rivers.

ANODONTA UNDULATA.—Shell thin, fragile, convex, olivaceous, obscurely radiate and obtusely wrinkled; umbo prominent, decorticated, with four or five obtuse undulations disappearing on the disk. In the right valve, immediately under the beak, the margin is curved inwards for the reception of a corresponding marginal projection of the opposite valve. Length, nearly half an inch; breadth, nearly seven-tenths of an inch. Plate 3, fig. 6.

This species is perhaps rare; it does not exactly agree in all its characters with the genus, but approaches nearer it than to any other; it resembles *Alasmodonta undulata*, for the young of which it might readily be mistaken.

Genus CYCLAS.—Shell almost orbicular, or a little transverse, without fold on the anterior margin; two or three primary teeth, and lateral, remote, lamelliform ones on each side.

Obs. The shells of which this genus is composed were formerly placed with the *Cardia* and *Tellinæ;* to the former they are more closely allied; it was originally established by Scopoli under the name of *Sphærium*, this was changed by Lamarck to *Cyclas*, which is now adopted by Latreille and other writers, notwithstanding the previous application of the term to a genus of plants.

CYCLAS SIMILIS.—Shell suborbicular convex, base a little flattened, with nearly equidistant, raised, concentric lines, giving a slightly sulcated appearance to the surface, and generally a more conspicuous elevated darker wave, marking the former year's growth of the shell. Epidermis brown or ferruginous; beak nearer central and obtuse; hinge with minute very oblique teeth, lateral ones very distinct, elongated, and considerably resembling those of the next species. Length, seven-twentieths of an inch; breadth, two-fifths: a specimen measured in length nearly three-fifths of an inch. Plate 1, fig. 9.

Very much resembles *Tellina cornea* of authors; is found in plenty in the river Delaware; animal viviparous; from one specimen three pale yellow active young ones were taken, the largest of which measured in breadth three-twentieths of an inch in the month of May.

CYLAS DUBIA.—Shell oblique, subovate convex, concentrically wrinkled, very pale horn color or whitish, with sometimes a darker, but not raised band, marking the preceding year's growth of the shell; beaks placed much nearer one end; within whitish, primary teeth very distinct, in one valve two divaricating ones, in the other but one; exterior laminal tooth very small. Length, five-twentieths of an inch; breadth, three-tenths. Plate 1, fig. 10.

Inhabits the river Delaware in company with *C. similis*, and very much resembles *Tellina amnica* of authors.

The shells here described are in the collection of the Academy of Natural Sciences of Philadelphia.

It was originally the intention of the writer of this article to insert here, not only descriptions of the fresh water and land shells, but those of the coast also; finding, however, that the descriptions of the latter were by far too voluminous to be comprised within the space allotted to this article, and that they had more generally found a place in the systems, the design is, with respect to this work, necessarily relinquished. To all the species here described, with the exception of three or four, we have been constrained to adapt specific names; but should it appear that we have been anticipated by the labors of some recent conchologist, whose writings we have no opportunity to consult, we shall readily bow to the right of priority, which ought unquestionably to be on all occasions imperative and exclusive.

The primary divisions of the Linnæan system, in the latest edition of the "Systema Naturæ," as before observed, consist of three orders, Multivale, Bivalve, and Univalve, each of which is subdivided into genera. The Multivalves contain the Chiton, Leapas and Pholas; the Bivalves, Mya, Solen, Tellina, Cardium, Mactra, Donax, Venus, Spondylus, Chama, Arca, Ostrea, Anomia, Mytillus, and Pinna; and the Univalves, Argonauta, Nautilus, Conus, Cypræa, Bulla, Voluta, Buccinum, Strombus, Murex, Trochus, Helix, Nerita, Haliotis, Patella, Dentalium, Serpula, Teredo, and Sabella. Which see. See also SHELLS.

[In the earlier editions of Nich. Enc. the following genera and species were not described: as the descriptions were only copied into the third

edition, from the Proc. Acad. Nat. Sci., I will not repeat them here. See Index.—Ed.]

Planorbis glabratus,
Lymnæa columella,
Cyclostema,
" tricarinata,
Ancylus,
" rivularis,
Paludina,
" limosa,
" lapidaria,
Alasmodonta,
" marginata,
Cyrena,
Cyrena Carolinensis, Bosc.

[No. 2. From the Philosophical Transactions of the Royal Society, 1819, p. 107.]

On the Genus OCYTHOË; being an extract of a letter from Thomas Say, Esq., of Philadelphia, to Wm. Elford Leach, M. D., F. R. S.

I have before me a specimen of Ocythoë in an Argonauta, forming part of the collection of the Acad. Nat. Sciences. It was taken from the stomach of a dolphin, which was caught in soundings on our Atlantic coast, and is in the most perfect state of preservation, not having suffered the slightest decomposition from gastric action.

It is sufficiently distinct from your *O. Cranchii*, as well as from the animal of *Nautilus sulcatus* of Klein; and if the figure given by Shaw of the animal of *Argonauta argo* has any pretensions to accuracy, it is most probably an unknown species.

I here attempt a description of it, and also submit a few remarks on the genus:

Ocythoë punctata.—Body pale, punctured with purplish; abdomen conic-compressed, vertical, semifasciate near the summit, with a profoundly indented transverse line; arms much longer than the body, attenuated, filiform at their tips, alated; membranes rounded.

Inhabits the Atlantic Ocean near the North American coast.

Descrip. Abdomen conical, slightly compressed, nearly vertical with respect to the disk of the head, with a profoundly indented transverse line, which extends half round, near the summit. Arms attenuated, much longer than the body, filiform towards the tip, slightly varied with brassy, inferior ones when extended double the length of the body; suckers alternate, becoming gradually smaller towards the extremities of the arms, where they are very minute; membranes of the anterior arms rounded or suborbicular, extending half way to the base of the arms; periphery occupied by the attenuated portion of the arm, which near its extremity passes upon the disk of the membrane, and terminates abruptly near the base of the expansion; the membrane is carinately decurrent on the inferior surface of the arm near the base of which it terminates; the inferior surface of the membrane is brassy, and more numerously maculated than the superior, which is pale.

Length from the disk to the tip of the abdomen	2	inches.
Length of the abdomen	1½	"
Greatest breadth of abdomen	1 1/10	"
Length of the alated arms	2¾	"
Length of those of the opposite side	5	"

Eggs subovate, attached to a delicate pedicle by a small basilar tubercle. These fill the involuted spire in the specimen, besides a considerable portion of the body of the shell.

The suckers are very like those of *O. Cranchii*, but the arms are much more elongated, and the abdomen longitudinal with respect to the head. This animal seems not to be unfrequently the prey of some of the larger fishes, for in addition to the instance above mentioned, Bosc informs us that in his passage between Europe and America, he found a specimen in the stomach of a *Corphæna equiselis*, Gmel., but very much decomposed; and in the museum of Mr. Peale, in this city, a fine *Argonauta* occurs, which was taked from the stomach of a shark.

With respect to the contested question relative to the parasitic nature of the animals of this genus, I believe the remark will hold good generally, if not absolutely, that those molluscous animals that form the shell in which they reside, are more or less connected with it by muscular or membranaceous attachment, or by the permanent spiral form of the posterior part of the body; and that the body of the animal complies with the inequalities of the chamber of the shell, or rather that the shell is moulded upon the body, so as to be in contact with it in every part. So careful are they to fill the cavity to its very summit, that when from their increase of growth, the apex of the shell is vacated in consequence of its straightness, either that part is removed by the animal, and additional calcareous matter is secreted to close the aperture thus formed, or it is permitted to remain and the cavity is filled up by the same secretion; of the former process we have an instance in *Bulimus decollata*; and of the latter, many instances occur, familiar to the knowledge of conchologists. The *Ocythoë* offers to our consideration a remote deviation from these ordinary laws which apply to the testaceous mollusca, inasmuch as it only resides in the last volution or body of the shell. In the specimen above described, the sides of the abdomen are slightly canaliculated, in conformity with the sculpture of the inner lateral surface of the shell; but it is worthy of remark, that the portion which corresponds with the most unequal part of the chamber, the carina, is not at all indented; which fact induces the supposition that the shell does not fit the body, and of course was not made for it, otherwise it does not seem probable that the body would be remote from the shell in one part, and impressed with its asperities in another.

Such also is the form of the inferior part of the abdomen, that it never could have revolved in the cavity of the involuted spire; yet we have never been informed that the vacated spire has been either broken or solidified. Neither is there any attachment whatever between any part of the body and the including shell, by an organ appropriated to that office. In consequence of this organisation the *Ocythoë* cannot adapt itself to the form of the cavity in which it rests, or secure itself there so completely as the well known parasitic *Paguri* are enabled to do, in consequence of the pliability of their vesicular abdomen, and by the agency of their terminal hooks or holders. Such observations seem to afford presumptive evidence of the parasitic nature of these animals.

It does not appear to me probable that the *Ocythoë* ascends to the surface of the water by exhausting its shell of the included water; for if this were the fact, those females, whose shell is in great part filled with eggs, could not visit the surface. But the change of specific gravity is doubtless effected in its own body, by which it is enabled to sustain itself on the surface at will, or to descend to the bottom promptly at the approach of danger.

The shells which in structure and appearance approach nearest to *Argonauta* are unquestionably to be found in the PTEROPODA; and the examination of *Carinaria*, *Atlanta*, and *Spiratella*, would almost lead us to suppose that the artificer of *Argonauta* is in reality of that division; but if this supposition be indicated by the conformation of the shell, it does not seem to be corroborated by the probable habits of the animal. All those hitherto discovered of that group, are known to swim at the surface of the ocean, and not being furnished with other organs of locomotion than fins, they cannot glide upon the bottom; we must, therefore, (analogically) suppose this to have been the habit of the animal; and yet it is hardly admissible that it should, in that case, have eluded the observation of voyagers, since the shell has not unfrequently been found in a state of occupancy by the parasite.

[No. 3, Journal of the Academy of Natural Sciences of Philadelphia.]

[J. A. N. S. vol. i. p. 13, et seqq. May, 1817.]

Genus CYCLOSTOMA.—A subdiscoidal or conic univalve. The aperture orbicular, with a circularly continued margin, often suddenly and widely reflected.

CYCLOSTOMA TRICARINATA.—Shell with three volutions; three revolving, carinate, prominent lines, giving to the whorls a quadrate, instead of a cylindric appearance. Suture canaliculate, in consequence of the whorls revolving below the second carina and leaving an interval. Spire convex, apex obtuse. Umbilicus large. Carina placed, one on the upper edge of the whorl, one on the lower edge, and the third on the base beneath. Breadth one-fifth of an inch.

Inhabits the river Delaware. Rare. Found by Mr. Le Sueur, whose proposed name is here adopted.

CYLOSTOMA LAPIDARIA.—Shell turreted, subumbilicate, with six volutions, which are obsoletely wrinkled across. Suture impressed. Aperture longitudinally ovate-orbicular, operculated, rather more than one-third of the length of the shell.

Length about one-fifth of an inch. Collection of the Academy of Natural Sciences.

Inhabitant not so long as the shell, pale; head elongated into a rostrum as long as the tentacula, and emarginate at tip; tentacula two, filiform, acuminated at tip, short; eyes prominent, situated at the external or posterior base of the tentacula; base or foot of the animal dilated, oval, obtuse before and behind.

Found under stones, &c. in moist situations, on the margins of rivers. Like those of the genera *Lymnæa* and *Planorbis* this animal possesses the faculty of crawling on the surface of the water, in a reversed position, the shell downward.

Genus LYMNÆA.—Shells subovate, oblong or somewhat tapering. Aperture entire, longitudinally oblong, the right lip circularly joined to the left at the base and folded back on the pillar.

LYMNÆA COLUMELLA.—Shell thin, fragile, horn-color; whorls four, longitudinally wrinkled. Spire prominent, acute. Suture not much impressed. Aperture dilated, ovate. Columella much narrowed near the base, so that the view may be extended from the base almost to the interior apex of the shell. Length seven-tenths of an inch nearly; of the spire one-quarter of an inch.

Inhabits stagnant waters and miry places. Collection of the Academy.

Animal aquatic, base not so long as the aperture; dusky, with small whitish spots; tentacula broad, pyramidal, compressed; eyes small, black, placed at the inner base of the tentacula.

This species is allied to *L. catascopium* of the American edition of Nicholson's Encyclopedia, but the revolution of the whorls is more oblique, the shell thinner, the aperture much more dilated, and the columella differently formed. For several specimens of this shell I am indebted to Mr. Titian Peale.

[J. A. N. S. vol. i. p. 124, et seqq., Oct., 1817.]

Genus ANCYLUS.—Shell conic, not spiral, concave beneath, above with a simple apex. Animal with the eyes placed at the inner base of the tentacula.

Obs. This genus has been by writers confounded with the *Patellæ*. The European species are *Patella lacustris* and *fluviatilis* of Linné.

ANCYLUS RIVULARIS.—Shell corneous, opake, conic-depressed, apex obtuse, nearer to, and leaning towards, one side and one end; aperture oval, rather narrower at one end, entire; within milk-white.

Length one-fourth of an inch. Cabinet of the Academy.

Common, adhering to stones in rivulets; the animal resembles the inhabitant of shells of the genus *Lymnæa*, the tail is very obtuse, rounded.

Genus PALUDINA.—Shell subovate, operculated; aperture entire, longitudinally ovate, narrowed above; lip simple, not dilated or reflected.

Obs. This genus has been very lately separated by Mr. Lamarck from the *Cyclostomæ*, with which it corresponds, except in having no dilated lip, and the aperture is angulated above. The animal has a short rostrum, two acute tentacula with eyes at their external base, a small membranaceous wing each side of the body before, foot double before, the wing of the right side is folded into a small canal, by which the water is introduced into the respiratory canal. Latr. To this genus will be referred several of the *Lymnæa* of the American Edition of Nicholson's Encyclopædia as *L. decisa*, *vivipara* and *subcarinata*.

PALUDINA LIMOSA.—Shell conic, subumbilicate, dark horn colored, generally incrusted with a blackish irregular covering on the spire, and sometimes on the body, which completely obscures the obsoletely wrinkled epidermis; aperture ovate-orbicular; suture impressed.

Length three-twentieths, breadth one-tenth, of an inch. Cabinet of the Academy.

Animal whitish; head brown; mouth, tentacula, orbits, and vitta on each side of the neck, white; tentacula filiform, more than half as long as the base of the animal; rostrum about half as long as the tentacula, annulate with darker lines above; foot white, brownish above, short, suboval, truncated before, and rounded behind.

Extremely numerous on the muddy shores of the rivers Delaware and Schuylkill, between high and low water marks.

[J. A. N. S. vol. i. p. 280, June, 1818.]

PLANORBIS GLABRATUS.—Shell sinistral; whorls about five, glabrous or obsoletely rugose, polished, destitute of any appearance of carina; spire perfectly regular, a little concave; umbilicus large, regularly and deeply concave, exhibiting all the volutions to the summit; aperture declining, remarkably oblique with respect to the transverse diameter.

Breadth nearly nine-tenths of an inch. Inhabits South Carolina. Cabinet of the Academy.

Presented to the Academy by Mr. L'Hermenier of Charleston, an intelligent and zealous naturalist; he assured me that this species inhabits near Charleston. It somewhat resembles large specimens of the *P. trivolvis* of the American edition of Nicholson's Encyc., but differs in the total absence of carina, and in having a more smooth and polished surface, as well as a declining and more oblique aperture, and a more profound and much more regularly concave umbilicus.

[J. A. N. S. vol. i. p. 459, 460, Dec., 1818.]

Genus ALASMIDONTA.—Shell transverse, equivalve; inequilateral, hinge with a primary tooth in each valve; cicatrices three. Animal resembling that of Unio?

ALASMIDONTA MARGINATA.—Shell transversely oblong-suboval, white, covered with an olive brown epidermis, obsoletely radiate with green numerous concentric wrinkles; umbo, with about three concentric undulations; ligament slope abruptly depressed, with numerous, obtuse, oblique rugæ, decussating the concentric ones, which are obsolete in that part; within bluish-white, margin white; cavity of the umbo not distinctly impressed by the external undulations; tooth compressed, oblique, nearly parallel with the posterior slope, and terminating abruptly behind.

Length, exclusive of the umbo, one inch and a quarter, breadth two inches and a half. Cabinet of the Academy.

The inner margin is of a chalky whiteness, in this respect resembling *Anadonta marginata*. It was communicated to me by Mr. Isaac Lea, who found it in the Scioto river.

Unio undulata of the first and second American editions of Nicholson's Encyclopædia, is a species of this genus, but it is very distinct from the *marginata*.

This genus will be properly placed between *Unio* and *Anodonta*, and in conjunction with *Dispas* of Leach, it will complete the chain of connection between those two genera. *Alasmidonta* corresponds with those genera in the number of its cicatrices, but is separable from *Anodonta* by its primary tooth; from *Unio* by being destitute of the lamelliform teeth; and from *Dispas* also by the last mentioned character, as well as by the presence of a primary tooth, which is wanting in that genus.

This new genus I formerly proposed when describing the above mentioned *Unio undulata*, under the name of *Monodonta;* but as this term has been applied to a genus of Univalves, I have substituted that of *Alasmidonta*.

[A. N. S., vol. ii. p. 149, seqq., Jan., 1821.]

The terrestrial and fluviatile shells which form the subject of the following pages, were chiefly obtained on the late expedition to the Rocky Mountains, under the command of Major Stephen H. Long. They are now deposited in the Philadelphia Museum, and constitute, in the collection of that institution, a distinct arrangement.

A few descriptions are added to this essay, of shells discovered in East Florida, Alabama, Pennsylvania, and New-York.

[J. A. N. S., vol. ii. p. 164, et seqq. Jan. 1821.]

PLANORBIS ARMIGERUS.—Shell dextral, brownish-horn color, wrinkles obsolete; spire perfectly regular, slightly concave; suture well impressed; umbilicus profound, exhibiting the volutions; whorls four, longer than wide, obtusely carinated above, carina obsolete near the aperture, a carina beneath continued to the aperture; aperture longitudinally subovate, oblique; labrum blackish on the edge; throat armed with five teeth, placed two upon the pillar side, of which one is large, prominent, perpendicular, lamelliform, oblique, and rounded abruptly at each extremity; near the anterior tip, is a small prominent conic acute one; on the side of the labrum is a prominent lamelliform tooth near the base, and two slightly elevated, oblique, lamelliform ones above.

Length, ¼ of an inch nearly. Inhabits Upper Missouri.

Remarkable by the teeth; but these are only discoverable by the microscopical examination of the mouth, and they are situated far within it.

P. TRIVOLVIS, BICARINATUS and PARVUS inhabit ponds of water, in the vicinity of Council Bluff.

PLANORBIS PARALLELUS.—Shell dextral, with very minute transverse wrinkles, and regular, revolving, equidistant, parallel, slightly elevated lines; spire a little convex; volutions four; aperture longer than wide; umbilicus exhibiting all the volutions.

Breadth, less than 3-20 of an inch. Inhabits Upper Missouri.

This shell has evidently the habit of a *Helix*, and may probably belong more properly to that genus, but having found it only in a dried up pond, in company with a vast number of aquatic shells, I refer it for the present to this genus.

PLANORBIS EXACUOUS*.—Dextral, depressed, with an acute edge.

Inhabits Lake Champlain. Cabinet of the Academy.

Shell depressed; whorls four, striated across, wider than long, not elevated above the suture, but a little flattened, sides obliquely descending to an acute lateral edge, below the middle; spire not impressed; suture not profoundly indented; beneath, body whorl flattened, on the inner edge rounded; umbilicus regular, exhibiting all the volutions to the apex; aperture transversely sub-triangular; labrum angulated in the middle, arquated near its inferior tip, the superior termination just including the acute edge of the penultimate whorl.

Greatest breadth, rather less than ¼ of an inch.

This species was found in Lake Champlain by Mr. Augustus Jessup, who deposited it in the collection of the Academy. Only two specimens occurred. It may be readily distinguished from *P. parvus*, by its more convex form above, the spire not being impressed, and by its very acute lateral edge. It appears to be pretty closely allied to *Planorbis nitidus* of Europe, but it is larger, the umbilicus much more dilated, and the aperture does not embrace the penultimate whorl so profoundly.

PLANORBIS CAMPANULATUS.—Sinistral; whorls longer than wide; aperture sub-campanulate.

Inhabits Cayuga Lake. Cabinet of the Academy.

Shell sinistral, not depressed; whorls four, slightly striate across, longer than wide; spire hardly concave, often plane; body whirl abruptly dilated near the aperture, and not longer behind the dilatation than the penultimate whirl; suture indented, well defined to the tip, the summits of the volutions being rounded; aperture dilated; throat narrow abruptly; umbilicus profound, the view extending by a minute foramen to the apex.

[* It would certainly appear that Mr. Say intended this word to read *exacutus*, as Dr. Gould suggests,—yet the same orthography is retained in Long's Exp.—ED.]

Greatest length of the body whirl, one-fourth of an inch Breadth from tip of the labrum, one half of an inch; at right angles to the last, two-fifths of an inch.

This shell abounds in some of the small streams, which discharge into Cayuga lake, where it was collected by Mr. Jessup, who presented specimens to the Academy, and to me. It is readily distinguished from our other species, by the sudden dilatation of the outer whirl, near the aperture in the adult shell, forming a large oval chamber. The summit of the outer whirl, behind the dilated portion, is not, or hardly elevated above the summits of the other volutions.

LYMNEUS ELONGATUS.—Shell horn color, tinged with reddish-brown; spire elongated, tapering, acute; whirls six or seven, slightly convex, wrinkled across; body whirl, measured at the back, more than half the total length; suture moderately indented; aperture less than half the length of the shell; labium with calcareous deposit.

Length, one inch and three-tenths.

Inhabits in considerable numbers, the ponds and tranquil waters of the Upper Missouri. It is very distinct from *L. catascopium*, by the much greater proportional length of the spire.

LYMNEUS COLUMELLUS.—(Jour. Acad. Nat. Sciences, vol. i. p. 14.) Var. *a*. Small, black—from Cold water creek of the Missouri. This is most probably a distinct species; we obtained but a single specimen of it.

LYMNEUS REFLEXUS.—Shell fragile, very much elongated, narrow, honey-yellow, tinctured with brownish, translucent, slightly reflected from the middle; volutions six, oblique, wrinkled transversely; spire more than one and an half times the length of the aperture, acute, two or three terminal whirls vitreous; body whirl very little dilated; aperture rather narrow; labrum with a pale margin, and dusky red or blackish sub-margin.

Inhabits Lakes Erie and Superior. Total length, 13-10—of the aperture 11-20 of an inch.

This shell is remarkable for its narrow and elongated form, and for the consequent, very oblique revolution of its whirls. When viewed in profile, it has a slightly reflected appearance. It was kindly sent to me for examination by my friends Messrs. S. B.

Collins, and D. H. Barnes, of New York, and was found in Lake Superior by Mr. Schoolcraft. I recollect to have seen a specimen two or three years since brought from Lake Erie, by James Griffiths. It is proportionally longer than *elongatus*.

Lymneus appressus.—Shell elongated ventricose; volutions six; spire regularly attenuated to an acute tip, rather shorter than the aperture; body whirl dilated, proportionally large; aperture ample; columella with the sinus of the fold profound, callus perfectly appressed upon the shell, to the base.

Inhabits Lake Superior.

This shell exhibits very much the appearance of *L. stagnalis*, but its body whirl is less proportionally dilated. The callus of the labrum is perfectly appressed to the surface of the whirl even to the base, exactly as in *stagnalis*. I have seen but a single weathered and broken specimen, which was sent me for examination by my friends Messrs. Collins and Barnes, of New York. It was found in Lake Superior, by Mr. Schoolcraft.

Since writing the above, Mr. Jessup presented me with several specimens, which he collected in Canandaigua and Cayuga lakes.

Lymneus elodes.—Shell oblong conic, gradually acuminated, reticulate with transverse lines and longitudinal wrinkles; whirls rather more than six; spire acutely terminated; suture moderately impressed; aperture shorter than the spire; labrum, inner submargin reddish obscure; labium, calcareous deposit rather copious, not appressed at base, but leaving a linear umbilical aperture; body whirl on the back longer than the spire.

Inhabits Canandaigua Lake.

Var. *a*. Whirls simply wrinkled across, the calcareous deposit at base appressed to the surface of the whirl.

This species was found by Mr. A. Jessup; it bears the most striking resemblance to *L. palustris*. The variety was found by the same enterprising mineralogist at Morristown, New Jersey. I have subsequently received specimens from Mr. S. B. Collins, of New York, who procured them in a marsh near the Saratoga Springs.

Lymneus desidiosus.—Shell oblong subconic; whirls five, very convex, the fourth and fifth very small, the second rather large; suture deeply indented; aperture equal to or rather longer than the spire; labium, calcareous deposit copious, not perfectly appressed at base, but leaving a very small umbilical aperture.

Inhabits Cayuga Lake. Length 7-10 of an inch.*

Found by Mr. Augustus Jessup. It is closely allied to *L. elodes*, but the whirls are more convex, one less in number, and the two terminal ones are proportionally smaller; the callus of the labium, also, near its inferior termination, is applied still more closely to the surface of the body whirl.

LYMNEUS MACROSTOMUS.—Shell suboval; whirls five, body whirl somewhat reticulated; suture not profoundly indented; spire about two-thirds of the length of the aperture, acute; aperture much dilated; labrum not thickened on the inner sub-margin.

Inhabits Cayuga Lake. Length one half of an inch, and upwards.

Imperfect specimens of this shell were found on the shore of Cayuga Lake, by Mr. A. Jessup, but they are sufficiently entire, to exhibit considerable similarity to some varieties of *L. auricularius* of Europe. It may readily be distinguished from *L. catascopium*, by its much more dilated aperture.

LYMNEUS EMARGINATUS.—Shell rather thin, translucent; volutions four, very convex; body whirl large; suture deeply impressed; spire somewhat eroded; mouth two-thirds of the length of the shell.

Length nearly 4-5 of an inch; of the mouth, half inch.

Inhabits Lakes of Maine. This species was discovered by Mr. Aaron Stone.

It is a rather larger and considerably wider shell than *L. catascopium*, and the emargination visible on a profile view of the umbilical groove is far more profound.

PHYSA GYRINA.—Shell heterostrophe, oblong; whirls five or six, gradually acuminating to an acute apex; suture slightly impressed; aperture more than one half, but less than two-thirds of the length of the shell; labrum a little thickened on the inner margin.

Length rather less than one inch.

Inhabits waters of the Missouri.

[* The text gives 7-20ths, which is corrected by Mr. Say in the remarks on *L. humilis*.—ED.]

Of this species, I found two specimens at Bowyer creek, near Council Bluff. It differs from *P. heterostropha* in magnitude, in having a more elongated spire, and less deeply impressed suture.

Physa elongata.—Shell heterostrophe, pale yellowish, very fragile, diaphanous, oblong; whirls six or seven; spire tapering, acute at the tip; suture slightly impressed; aperture not dilated, attenuated above, about half as long as the shell; columella much narrowed near the base, so that the view, may be partially extended from the base towards the apex.

Inhabits shores of Illinois. Length, 7-10 inch. Greatest breadth, 3-10 nearly.

Animal deep black, immaculate, above and beneath; tentacula setaceous, a white annulation at base.

In the fragility of the shell, this species approaches nearest to *columella*. It is very common in stagnant ponds on the banks of the Mississippi. When the shell includes the animal, it appears of a deep black color, with an obsolete testaceous spot near the base on the anterior side. Its proportions are somewhat similar to those of *P. hypnorum*.

Physa heterostropha (Nicholson's Encyc.)—Is very common in ponds of the Missouri as far as Council Bluff.

Valvata tricarinata (Nicholson's Encyc.) occurs in considerable numbers in ponds, in the vicinity of Council Bluff.

Paludina ponderosa.—Shell somewhat ventricose, much thickened, olivaceous or blackish; spire not much elongated, much shorter than the aperture, eroded at tip, but not truncated; whirls five, slightly wrinkled across; suture profoundly impressed; aperture subovate, more than half the length of the shell; labium with much calcareous deposit, and thickened into a callosity at the superior angle; within tinged with blue.

Inhabits Ohio River.

Greatest length, one inch and 11-20. Transverse diameter one inch and 1-10.

This shell is common at the falls of the Ohio, and is a very remarkably thick and ponderous species. It bears a striking resemblance to *P. decisa*, and has, without doubt, been generally considered as the same; but it differs from that species in being much more incrassated and heavy; and although much decorticated and eroded upon the spire, the tip is not truncated. In the labrum also is a distinctive character; by comparison this part will be perceived to be less arquated in its superior limb, than the corresponding part in *decisa*.

PALUDINA INTEGRA.—Shell olivaceous, pale, conic; whirls six, wrinkled across; spire rather elongated, entire at the apex; suture profoundly indented; aperture subovate, less than half of the length of the shell.

Inhabits the waters of the Missouri. Length ¼ inch.

Very much resembles *P. decisa*, the spire, however, is more elongated, and never truncated at the apex, but always acute.

PALUDINA PORATA.—Shell obtusely-conic or subglobose; volutions four, convex, obsoletely wrinkled across; spire obtuse; labrum and labium equally rounded, meeting above in a subacute angle; the upper edge of the latter appressed to the preceding whirl; umbilicus very distinct.

Inhabits Cayuga Lake. Cabinet of the Academy.

This species, which was found by Mr. Jessup, is rather larger and more globose than *P. limosa* to which it is allied, and has a more distinct umbilicus. It resembles *P. decipiens* of Ferrussac, but is much less acute, and rather smaller.

PALUDINA LUSTRICA.—Shell conic; whirls slightly wrinkled, convex; suture profoundly indented; aperture oval, nearly orbicular; labrum with the superior edge not appressed to the preceding whirl, but simply touching it; umbilicus rather large, rounded.

Length, less than 1-10 of an inch. Cabinet of the Academy.

The smallest species I have seen. The aperture somewhat resembles that of a *Valvata*, to which genus it may probably be referrible. Mr. Jessup obtained two specimens on the shore of Cayuga Lake.

MELANIA CANALICULATA.—Shell tapering, horn-color; volutions about seven, slightly wrinkled; spire towards the apex much eroded, whitish; body with a large obtuse groove, which is obsolete upon the whirls of the spire, in consequence of the revolution of the suture on its inferior margin; this arrangement permits the superior margin of the groove, only, to be seen on the spire, in the form of an obtuse carina on each of the volutions; aperture bluish-white within, with one or two obsolete revolving sanguineous lines;

labrum slightly undulated by the groove, and with a distinct sinus at the base of the columella.

Inhabits Ohio River.

Length, one inch and one tenth. Breadth, 3-5 of an inch. Greatest transverse diameter more than 2-5.

Very common at the Falls of the Ohio River. It is probably the largest species of this genus in the United States, and may be readily distinguished from its congeners by its broad groove.

MELANIA ELEVATA.—Shell gradually attenuating to the apex, slightly and irregularly wrinkled, olivaceous; suture not deeply impressed; volutions nine or ten, with several more or less elevated revolving lines, of which one being more conspicuous gives the shell a carinated appearance; aperture oblique, equalling the length of the second, third, and fourth volutions conjunctly.

Length, one inch. Breadth two-fifths. Inhabits Ohio River.

Distinct from our other species, by the elevated revolving lines.

MELANIA CONICA.—Shell conic, rapidly attenuating to an acute apex, very slightly wrinkled, olivaceous; suture not deeply impressed; volutions seven or eight; aperture oblique, equalling the length of the second, third, and fourth whirls conjunctly.

Var. *a*. With from one to three, revolving, rufus or blackish lines.

Length, nearly 3-5 inch. Of the aperture, ¼ inch. Inhabits Ohio River.

May be readily distinguished from *M. virginica* by the much more rapid attenuation of the spire, and in the proportional difference in the length of the aperture, which in the *virginica* is not more than equal to the length of the second and third whirls.

MELANIA PRÆROSA.—Shell subglobular, oval, horn color; volutions three or four, wrinkled across; spire very short, much eroded in the old shell, so much so as to be sometimes not prominent above the body whirl; body whirl large, ventricose, with a very obtuse, slightly impressed revolving band; aperture suboval, above acute and effuse; within on the side of the exterior lip about four revolving purplish lines, sometimes dotted, sometimes obsolete or wanting; labium thickened, particularly at the superior termination near the angle, and tinged with purplish; base of the columella somewhat elongated and incurved, meeting the exterior lip at an angle.

Length, about 4-5 inch. Inhabits Ohio River.

Found in plenty at the falls of the Ohio. The spire is remarkably carious in the older shells, and the penultimate whirl, between the aperture and the spire, is also remarkably eroded in many older shells. The spire in the young shell is entire, and but little prominent, though acute, and the bands are distinct on the exterior of the shell. This shell does not seem to correspond with the genus to which I have, for the present, referred it; and owing to the configuration of the base of the columella, if it is not a *Melanopsis*, it is probable its station will be between the genera *Melania* and *Acathina*. I propose for it the generic name of ANCULOSA.

MELANIA ARMIGERA.—Shell tapering, brownish-horn color; volutions about six, slightly wrinkled; spire near the apex eroded, whitish; body whirl with a revolving series of about five or six distant, prominent tubercles, which become obsolete on the spire, and are concealed by the revolution of the succeeding whirls, in consequence of which arrangement there is the appearance of a second, smaller, and more obtuse subsutural series of tubercles on the body whirl; two or three obsolete, revolving, reddish-brown lines; aperture bluish-white within; a distinct sinus at the base of the columella.

Inhabits Ohio River. Length about one inch.

Distinguished from other N. American species, by the armature of tubercles.

BULLA FLUVIATILIS.—Shell suboval, pellucid, pale yellowish white, finely wrinkled; volutions three; body whirl large, with a prominently carinated shoulder bounding the spire; spire perfectly flat or slightly concave, giving to the shell a perfectly truncated appearance in that part; aperture longer than the columella, oblong-ovate, extending beyond the tip of the spire; umbilicus profound, edged by a slight carina.

Length of the aperture one-fifth of an inch. Greatest breadth somewhat less. Inhabits the River Delaware.

This species seems to be rather rare; it was discovered by Mr. Aaron Stone, deeply imbedded in the mud; Mr. William Hyde, of this city, has since found specimens of it amongst some dead shells of other genera assembled in a small inlet of the river.

[J. A. N. S. Vol. ii. p. 281, et seqq. June, 1822.]

During occasional visits to our sea coast, and particularly on a journey to East Florida, in company with Messrs. Maclure, Ord, and T. Peale, I availed myself of every favorable opportunity to collect marine shells, whilst engaged in the pursuit of other and more favorite objects.

No naturalist, however conversant he may be with marine productions, can examine our sea coast for a single day with ordinary assiduity, without discovering something new or interesting to reward his labors, and to gratify his laudable curiosity. Accordingly these researches furnished my cabinet with a great number of shells which were unknown to me, and of which many appeared to be unnoticed in those works on conchology to which I could obtain access.

But supposing that these apparently new species, many of which, being either abundant in individuals, or attractive to the eye by beauty of coloring or symmetry of form, had been often observed by foreign naturalists and collectors, and in all probability had long since been transmitted to Europe, and perhaps published in some splendid volume, or, to us, obscure tract, of which the title had not yet reached this country, I was induced to relinquish any further investigation of the subject, and to dwell upon the hope of receiving more exotic information than we already possessed.

This course I was more readily inclined to pursue, in consequence of being informed that an American zoologist had already commenced the examination of our marine shells, with the intention of publishing the result of his observations. Several years have, however, since elapsed without any addition to our knowledge in this department of Natural History, from the pen of an American author.

Several naturalists who now devote a portion of their attention to conchology, and particularly to that of the United States, having recently requested me to publish an account of our marine shells, I have thought it might be useful to communicate to them immediately descriptions of those which I do not find to be distinctly described by attainable authors. Such species or varieties, only, are made known in the following essay.

With a view to condense this paper as much as possible, I have omitted the generic characters, but at the same time, I have been careful to subjoin to the generic names that are here adopted, abbreviations of the author's names, who formed them respectively, or whose generic definitions I have followed.

TYPE AND CLASS MOLLUSCA GASTEROPODA.

PATELLA AMŒNA.—Shell oblong-oval, whitish reticulated with reddish-brown, and sculptured with numerous minute concentric wrinkles and close set radii; margin entire; apex placed behind the middle, and pointing backwards.

Coast of New England States.

Length of a small specimen, seven-twentieths, breadth one-fifth of an inch. Breadth of a larger one three-tenths, nearly. My cabinet.

It may be readily distinguished in general by the beautiful reticulated disposition of the rufous color, inclosing small irregularly oval, white, or yellowish-white spots. They sometimes, however, are of a uniform greenish or brownish color. Several specimens of this species were communicated to me by Mr. Aaron Stone, who found them on the coast of Maine.

FISSURELLA ALTERNATA.—Shell oblong-ovate, moderately thick, cinereous or dusky, with equal concentrated lines, crossed by alternately larger and smaller radii, all which are equable or not dilated in any part; vertex placed nearer the smaller end; perforation oblique, oblong and a little contracted in the middle; within white; margin simply crenate; apex with an indented transverse line at the larger end of the perforation.

Length four-fifths of an inch. Breadth three-fifths. Height more than two-fifths. Inhabits the coast of the United States. Cabinet of the Academy, and Philadelphia Museum.

Bears a general resemblance in its sculpture to *F. græca,* but the radii are not dilated at the points where they are crossed by the concentric lines. I have specimens from the coast of Maryland that measure one inch and a half in length.

CREPIDULA FORNICATA ? var.—Shell transversely wrinkled, varying in convexity, with obsolete longitudinal, undulated, rufous lines; one side more oblique than the other; apex excurved, a little prominent, but not separated from the body of the shell, and generally united with the margin of the aperture; aperture suboval; diaphragm a little concave, occupying at least half of the length, edge generally declivate.

Inhabits the coast of the United States. Length two inches. Cabinet of the Academy, and Philadelphia Museum.

Seems to differ from the species as described by Roissy in Sonni. Buff. by having lateral lineations instead of spots. It may very probably be a distinct species.

CREPIDULA DEPRESSA.—Shell very much depressed, transversely wrinkled, nearly equilateral; epidermis pale yellowish-brown; apex not curved, forming a simple acute terminal angle upon the margin of the aperture; aperture subovate; within white; diaphragm convex, edge contracted in the middle and at one side

Length four-fifths of an inch. Inhabits the coast of the United States.

Cabinet of the Academy, and Philadelphia Museum. Differs from the preceding in the form of the beak, which is never arquated.

CREPIDULA GLAUCA.—Shell thin, convex, glaucus, with minute transverse wrinkles; apex conic, acute, not excurved, but declining and distinct from the margin of the aperture; aperture oval-orbicular; within entirely reddish-brown; diaphragm plain or convex, less than half the length of the shell, edge widely contracted in the middle.

Length about half an inch. Inhabits the coast of the United States.

Cabinet of the Academy and Philadelphia Museum. Very distinct from the preceding species.

CREPIDULA PLANA.—Shell depressed, flat, oblong oval, transversely wrinkled, lateral margins abruptly deflected; apex not prominent, and constituting a mere terminal angle, obsolete in the old shells; within white; diaphragm occupying half the length of the shell, convex, contracted in the middle and at one side.

Length one and one-tenth of an inch. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

A remarkably distinct species, the surface of the shell is flat, and sometimes slightly concave. The young shell is generally orbicular, and gradually becomes proportionally more elongated as it increases in size. I have found it on the coasts of Maryland, Carolina, Georgia and East Florida, and my brother, Mr. Benjamin Say, discovered it on the shores of New Jersey.

CREPIDULA INTORTA ? var.—Shell convex, ovate, with about twenty elevated, somewhat undulated, lines, with alternate smaller ones; lines somewhat confused on the convex side of the shell, the larger lines with a few slightly elevated, very thick fornicated tubercles; apex curving laterally, tip pointing upwards and not elevated from the body of the shell.

Inhabits the southern coast.

Of this shell I found but a single specimen, which is very imperfect. It seems to correspond very well with the description of *C. intorta* of the coast of England, with the exception of the form of the vertex, which in that species is said to turn downwards, whereas, in our shell, it not only turns downwards, but the curve is continued until the tip points upwards.

CREPIDULA CONVEXA.—Shell very convex, obsoletely wrinkled or glabrous, one side vertical, the other oblique; apex prominent, decurved, slightly inclining towards the oblique margin, tip generally free and extending lower than the edge of the aperture; aperture suboval; diaphragm less than half the length of the shell, edge simply arquated.

Length three-fifths of an inch. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

This species is not uncommon, particularly upon our southern coast. The description is drawn from what are termed dead shells, but I have one specimen which is varied with rufous and whitish.

OLIVA MUTICA.—Shell suboval, white, or yellowish-white; body whirl with about three revolving maculated bands of pale rufous, of which the superior one is continued upon the spire, the intermediate one is dilated so as to be sometimes confluent with the inferior one, which is narrowest; spire short; suture very narrow; columella destitute of striæ.

Length more than two-fifths of an inch. Inhabits the southern shores. Cabinet of the Academy and Philadelphia Museum.

A common shell, varying somewhat in color; the bands are sometimes deep reddish-brown, sometimes livid, rarely all united, and offering only a white line near the base. It seems allied to the *O. zonalis* as described by Lamarck, but is a larger species.

BUCCINUM ORNATUM.—Shell subturbinated, with about two bands of arched scales.

Inhabits the coast of East Florida. Cabinet of Mr. William Hyde.

Shell subturbinated, with numerous revolving striæ and intermediate grooves; whitish cinereous, with rufous bands, and transverse, irregular wrinkles, and obsolete undulations separated by somewhat rugged incisures; near the base is a band of ten or twelve elevated arched scales, disappearing in the aperture; whirls flattened above the shoulder, and armed in that part with undulated lamellæ, which on the shoulder are elevated into prominent concave spines; spire prominent; whirls transversely undulated, the arched scales disappearing towards the tip; aperture effuse; throat varied with pale green and yellowish, the rufous bands being very distinct; umbilicus none.

Length four inches. Aperture two and three-fourths inches. Spire one and a half inch.

This fine coronated shell, seems to agree better with the descriptions of *B. armigerum* and *bezoar*, than with those of any other species, as far as I have been able to ascertain. To the latter it seems to be more closely related, with Agenville's figure of which it corresponds in the form and position of the basal band of scales, excepting that it has this band far more oblique; that figure, however, is much less elongated than our shell, and it appears to have a double series of prominent scales on the shoulder. The *bezoar*, moreover, is described to be umbilicated, a character which does not exist in our species.

COLOMBELLA AVARA.—Shell small, covered with a dirty brownish pigment, beneath which it is whitish reticulated or maculated with rufous; spire elevated, acute; volutions eight, with spiral impressed lines, and transverse elevated obtuse costa; the costa upon the body whirl are terminated at the middle, and are about eleven in number; labium with a distinct plate crenated on the submargin; labrum denticulated within, but not very perceptibly thickened on the inner middle.

Length less than half an inch. Inhabits the coast of the Southern States. Cabinet of the Academy and Philadelphia Museum.

Does not fully correspond with the characters of this genus, as the labrum is not very distinctly dilated on the inner middle, and the spire has the elevation of a *Mitra*.

It is a common species, and occurs as far north as the coast of Maryland.

Nassa vibex.— Shell cancellate, ventricose, cinereous or pale reddish-brown, with two or three irregular, sometimes obsolete darker fascia; body whirl with twelve thick, prominent costa, and about as many revolving filiform lines, which are not much elevated, and but simply crenate the costa and lip; labrum incrassated, with about two more prominent teeth within; labium callous; spire short, rapidly attenuated to an acute tip.

Length three-fifths of an inch. Inhabits the southern and middle coast. Cabinet of the Academy and Philadelphia Museum.

Rather rare. I found but four specimens. For the locality of the coast of the Middle States, I am indebted to my brother, Mr. B. Say, who brought me a specimen from the shores of New Jersey.

Nassa trivittata.—Shell conic acute, yellowish-white, cancellate so as to appear granulated, granules prominent, equidistant; ten revolving impressed lines on the body whirl, and a somewhat more conspicuous groove near the summit of each volution; spire as long or longer than the body, and with a rufous revolving line near the suture; body whirl trilineate with rufous, the lines placed one near the suture, one on the middle, and the third rather darker, at the origin of the beak; suture regular and deeply impressed; beak distinguished by a profound depression, from the body whirl, slightly reflected; labrum not incrassated, with raised lines within upon the fauces which do not extend quite to the edge of the lip; labium distinctly lamellar, with an obsolete fold of the basal edge, and a tooth near the superior junction with the labrum.

Length about seven-tenths of an inch. Inhabits the Middle and Southern States. Cabinet of the Academy and Philadelphia Museum. A very common species.

It somewhat resembles Maton and Rackett's figure of *Buccinum macula*, (Linn. Trans. Lond. vol. 8,) in the cancellated appearance, but it is a longer shell and destitute of the incrassated aperture. This species is closely allied to the genus *Phos* of Montfort, by the striated labrum, and the projection or slight fold at the base of the columella, which, in the system of that author, is an essential one.

Nassa obsoleta.—Shell ovate-conic, subacute, cancellate, exhibiting a granulated appearance, dark reddish-brown, or blackish, sometimes tinged with olivaceous; spire shorter than the body; suture not deeply impressed; beak not distinguished from the body whirl by any profound depression, and not prominent; labrum within lineated with elevated, abbreviated or interrupted lines, not incrassated, purple-black; columella at base with a prominence or fold.

Length three-fifths of an inch. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

Animal.—Foot as long as the shell, rounded before, with the anterior angles elongated, conic, reflected and resembling short tentacula; head not extended beyond the shell; eyes above the base of the tentacula, placed on the exterior side and black; tentacula setaceous, abruptly smaller above the eyes; trunk cylindrical, the suture beneath exserted over the head, half as long as the shell and very conspicuous.

Inhabits the shores of our estuaries in great numbers. When left by the recess of the tide, they collect together in small pools, or crawl in pursuit of the retiring water; but when left quite dry, they burrow in the sand so as to conceal themselves from the action of the sun, and patiently await the returning tide. They assemble about dead crabs and other animals, and appear to feed upon them.

This shell is more frequented by *Pagurus longicarpus* than any other; it bears a general resemblance to the preceding species, but is sufficiently distinguished by being less elongated, the suture and impressed lines not being so profound and the beak less prominent and distinct; the color is also very different.

It resembles the shell represented by Lister, plate 276, fig. 32. "Buccinum B. r. parvum nigrum ex toto læve." It is usually covered by a blackish pigment which obscures its character: within the aperture, on many specimens, a dull or obsolete whitish line may be seen.

The description shows the near approach of this shell to Montfort's genus *Phos*, to which it is as closely allied as the preceding species.

NASSA ACUTA.—Shell conic acute, whitish, cancellated so as to appear granulated, granules prominent, somewhat transverse, inequidistant, the transverse grooves being more profound and dilated than the spiral ones, which are six in number; spire longer than the body whirl, slender towards the tip, acute; suture impressed, but not profoundly; beak distinguished by a depression from the body whirl, and slightly reflected; labrum incrassated, and with elevated lines upon the fauces, which do not attain the edge of the lip.

Length half an inch. Inhabits the shores of the Southern States. Cabinet of the Academy and Philadelphia Museum.

A species which not unfrequently occurs, it is very distinct from the two preceding ones, and may be readily distinguished from them by the incrassated outer lip.

CERITHIUM DISLOCATUM.—Shell attenuated, acute at the apex; volutions with numerous, minute, revolving, impressed lines, and from fifteen to eighteen transverse, elevated costa to each volution, which are dislocated near the summit of each volution by a revolving line, as deeply impressed as the suture.

Length one and one-fourth of an inch. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

This shell is very common on the Southern shores, particularly on that of East Florida, but I have also found specimens on the shore of Maryland. Lister, tab. 979, fig. 36, represents a shell very similar to this, but larger.

The effect of the impressed line, which revolves above the middle of the volutions, is, to separate the longitudinal raised lines into two series, whereof the lines of the superior series are much shorter and thicker than the others.

FUSUS CINEREUS. Shell with a cinereous epidermis, reddish-brown beneath; volutions cancellate, the transverse costa eleven, robust; revolving lines filiform, irregularly alternately smaller, crenating the edge of the exterior lip, which is acute, and alternating with the raised lines of the fauces; fauces tinged with chocolate color; beak short, obtuse, not rectilinear; labrum not incrassated.

Length one and one-fourth of an inch. Inhabits the estuaries of the United States. Cabinet of the Academy and Philadelphia Museum.

I have frequently found this species in oozy places of the bay of Great Egg Harbor, and on the Eastern shore of Maryland. My brother, B. Say, ascertained that it is also an inhabitant of the coast of New Jersey.

Ranella caudata.—Shell pale reddish-brown, cancellate, with eleven robust costa to the body whirl, and several revolving filiform lines passing over them, which are more prominent upon the varice of the aperture, terminate at its inner edge, and there alternate with the raised lines of the fauces; volutions flattened at their summits, abruptly declining to the suture; canal coarctate, rather longer than the spire; beak rectilinear, reflected at the tip.

Length one inch. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum. A rather common species.

This generic name I think objectionable, inasmuch as it borders too closely upon *Renilla,* which designates a genus of the class *Polypi* of Lamarck. Montfort's appellation *Buffo* is not preferable for a similar reason, as it would be liable to be confounded with *Buffo,* a genus of *Reptilia.*

Fulgur pyruloides.—Shell with spiral striæ alternately larger; whirls white, transversely lineated with ferruginous lines, interrupted or obsolete on the middle; above flattened, unarmed; spire short; suture profoundly canaliculate.

Seba, Vol. 3, *pl.* 68, *fig.* 19, 20 ?

Lister, Conch. pl. 877 ?

Length three inches and four-fifths. Breadth one inch and one-tenth. Inhabits the Southern coast. Cabinet of the Academy and Philadelphia Museum.

At first sight this species would be referred to the genus *Pyrula,* but upon inspection it will be observed to have a fold on the columella. I formerly mistook the young shells for those of *F. caniculata* or *granum,* which they much resemble in form, in the grooved sutures, and in the spiral striæ; but they differ from them in having a much less elevated spire, by being entirely destitute of armature, either of spines or tubercles, upon the angulated ridge of the volutions, and by being marked with colored lines. In this last character they approach *F. perversus,* but they will not be mistaken for that species.

As the shell advances in growth, the acute edge of the depressed top of the whirls becomes obtuse, and in the adult shell it is nearly obsolete; in which state the almost regular curve of the whirl is very like that of *Pyrula.*

Seba's figures above quoted, are probably intended for this species; they certainly represent it very well as it appears in the young state.

I think it highly probable that this is the *Bulla Ficus*, Var. *b*. Gmel., which Dillwyn describes under the name of *Bulla pyrum*, with the country of which he was unacquainted.

PYRULA PAPYRATIA.—Shell inflated, thin, white, with small, pale, rufous spots, within pale, dull purplish-red; whirls with numerous spiral striæ, which are alternately larger, crossed by smaller striæ.

Length four inches and one-tenth. Greatest breadth two inches and one-fifth nearly. Inhabits the coast of Georgia and East Florida. Cabinet of the Academy.

This species has been hitherto confounded with *P. ficus*, to which indeed it is closely allied, but differs in having the beak proportionably longer, and in being but slightly spotted.

It is also an inhabitant of the West Indies.

TURBO IRRORATUS.—Shell thick, greenish or pale cinereous, with numerous revolving, elevated, obtuse, equal lines, which are spotted with abbreviated brownish lines; suture not indented; spire acute; labium incrassated, yellowish-brown; labrum within white and thick, at the edge thin, and lineated with dark brownish; throat white; columella with an indentation; operculum coriaceous.

Length four-fifths of an inch. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

This has the general appearance of *T. littoreus*, but is sufficiently distinct by the above characters; the calcareous deposit on the labium is copious.

An inhabitant of our estuaries of the Middle and Southern States. I have found them on the Eastern shore of Maryland, and on the coast of Carolina, Georgia and Florida; and my brother obtained a specimen on the coast of New Jersey, of the length of one inch and one-tenth nearly. Mr. Cuvier would place this shell in the genus *Paludina*.

TURBO CANALICULATUS.—Shell thin, globular, with about four volutions; body whirl with four profound striated grooves, and and several smaller ones near the base and suture; suture profoundly indented; color pale reddish-brown, immaculate.

Length about one-tenth of an inch. Inhabits the Southern coast.

Animal.—Foot shorter than the shell, oval; tentacula rather robust, filiform, half as long as the foot; eyes at the external base of the tentacula.

I have obtained but a single individual of this species. If it is only an immature specimen, we know nothing of the parent of it.

TURBO PALLIATUS.—Shell suboval, not remarkably thickened; whirls four or five, wrinkled transversely; spire short, convex, obtuse, much shorter than the aperture; suture moderately indented.

Length about one-third of an inch. Greatest breadth about the same. Inhabits the shores of the New England States. Cabinets of Mr. Aaron Stone, Mr. Wm. Hyde and my own.

This species was found by Mr. Aaron Stone on sea-weed, about low water mark. It is often variegated with olivaceous and white, or green and yellowish, so as to exhibit a reticulated appearance; but they are very frequently covered with a greenish, or reddish-brown pigment, and sometimes with a plain yellowish-white immaculated one. The shell within is very often of a dark reddish-brown color, with the oral margin whitish; but the same part is sometimes entirely whitish.

TURBO OBLIGATUS.—Shell suboval, not thickened; whirls five, transversely wrinkled, and longitudinally striated with obtuse slightly elevated lines; spire short, much shorter than the aperture; suture indented.

Length about one-third of an inch. Greatest breadth about the same. Inhabits Portland, Maine. Cabinets of Messrs. Stone, Hyde and Say.

This species strongly resembles the preceding, but is distinguished by the elevated, obtuse, revolving lines, or acute impressed ones. The colors are greenish, olivaceous, or whitish, with darker, irregular, transverse lines or shades, and the throat is dark reddish-brown, the margin of the mouth whitish. It is very possible that it is only a variety of the preceding.

TURBO VESTITA.—Shell conic, rather thin; whirls about six, rounded, transversely wrinkled; spire as long as the aperture; suture deeply impressed.

Length two-fifths of an inch. Width more than three-tenths. Inhabits Maine. Cabinets of Messrs. Stone, Hyde and Say.

We are indebted for this shell to Mr. Aaron Stone. It is commonly invested with a dirty greenish-white pigment, beneath which it is sometimes reticulated with abbreviated yellowish lines, on a brown or dusky ground.

SCALARIA LINEATA.—Shell brownish, elongated, with about seven volutions; costa robust, obtuse, little elevated, and from seventeen to nineteen on the body whirl; body whirl with generally a blackish, more or less dilated line, which is nearly concealed on the volutions of the spire by the suture; margin of the mouth robust, white, more dilated at the columella base.

Length about half an inch. Inhabits the southern coast. Cabinet of the Academy and the Philadelphia Museum.

Very much resembles *Turbo clathratulus* of Montague, which is figured by Maton and Rackett as a variety of *T. clathrus*, (Trans. Lin. Soc. Lond. vol. 8, pl. 5, fig. 1,) but the lip is more robust, and the basal portion of that part is more dilated than the quoted figure of that species. It is possible, however, that it is only a variety of that species.

TURRITELLA ALTERNATA.—Shell dusky; acute at the apex; volutions eight, with about eight unequal, revolving, slightly elevated lines, which are maculated with rufous, and decussated by transverse, elevated, obtuse lines, which are obsolete below the middle of the body whorl and prominent on the spine; labrum not thickened, a slight indentation at its base.

Length one-fifth of an inch. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

Animal.—Foot longer than the aperture of the shell, rather acute behind, and truncated a little convexly before; tentacula filiform, cylindrical, obtuse at tip, nearly as long as the foot, white, annulate with brownish lines; eye at the external base of the tentacula, not prominent; rostrum about one-third the length of the tentacula; operculum blackish.

The shell, when taken from the water, becomes whitish-cinereous. They abound amongst *Fucus*, and sometimes on the shell of *Limulus Polyphemus*. The animal considerably resembles that of *Melania Virginica* as respects form, and in common with many fresh water shells it possesses the power of gliding along the surface of the water, with the shell downward.

This shell is something like *T. reticulata*, but the sculpture is less profound, and it has never any appearance of varices, or incrassation of the labrum.

TURRITELLA IMPRESSA.—Shell dusky, acute at the apex; volutions six, with about four acute, impressed, revolving lines; labrum not thickened, a slight indentation at its base, and a projecting angle within its middle.

Inhabits the coast of Maryland. Length more than one-eighth of an inch.

I have seen but two specimens of this species. The aperture is precisely similar to that of the preceding species.

TURRITELLA BISUTURALIS.—Shell thin, pellucid, small, conic; whirls five, wrinkles almost obsolete, a revolving impressed line near the suture; suture not deeply impressed; spire gradually tapering, rather longer than the aperture; aperture rounded at base, and perfectly entire.

Length rather more than one-tenth of an inch. Inhabits Boston harbor. My cabinet.

I am indebted to Mr. Aaron Stone for this small species of *Turritella*. It is distinguished from all others that I have seen, by the single impressed line, which revolves near the suture.

BULLA SOLITARIA.—Shell remarkably thin and fragile, pellucid, oval, narrowed at base, with numerous impressed revolving lines, and transverse very obtuse wrinkles; aperture surpassing the tip of the shell; spire none, substituted by an umbilicus; umbilicus of the base none.

Less than half an inch. Inhabits the southern coast of the United States.

I found a specimen of this species of *Bulla* on the coast of Maryland, but have not seen another. It is probable that it is rare. It approximates to the description of *B. hydatis*, but it can hardly be the same, as it is more oblong than the species *B. naucum* agreeably to the figure in the Encyc. Meth., which species is referred to by Dillwyn, as being of the same form with *hydatis*.

MELAMPUS BIDENTATUS.—Shell thin, fragile, dirty-brownish;

very little elevated, obtuse; body whirl with minute transverse wrinkles, and revolving impressed striæ; labium bidentate, the superior tooth transverse, prominent, terminating at the exterior edge of the columella; labrum with four or five elevated striæ, not attaining the edge; base not contracted.

Length nine-twentieths of an inch.

Animal about as long as the shell, and the foot is transversely bifid; tentacula somewhat wrinkled, cylindrical, rather smaller towards the tips, which are obtuse or rounded; eyes placed at the inner base of the tentacula; rostrum somewhat wrinkled, nearly as long as the tentacula, bi-lobate before; foot, anterior segment emarginate behind, posterior segment bifid at the extemity; all above, with the exception of the tenacula and rostrum, glabrous, reddish-brown, beneath paler.

Inhabits East Florida. Cabinet of the Academy and Philadelphia Museum.

Var. *a.* With three or four fuscous revolving lines; base of the aperture narrower than in the species.

Length seven-twentieths of an inch. Inhabits the coast of Maryland and New Jersey.

These shells inhabit the salt marshes, and have the habit of crawling up the culms of grasses, and other plants. I observed them to be very numerous near the mouth of St. John's river. It is sufficiently distinct from the *M. coniformis* by the paucity of striæ on the labrum.

The variety is a very common inhabitant of our coast, and is very possibly a distinct species, as it is lineated and is narrower at base; if so, it may be called LINEATUS.

Great numbers of this species are devoured by the dusky duck (*Anas obscura,*) and perhaps by other birds.

NATICA DUPLICATA.—Shell thick, sub-globose, cinereous, with a black line revolving on the spire above the suture, and becoming gradually diluted, dilated, and obsolete in its course; within brownish-livid; a large incrassated callus of the same color extends beyond the columella, and nearly covers the umbilicus from above; umbilicus with a profound sulcus or duplication.

Greatest length about two inches. Greatest breadth rather more. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

Very numerous upon almost the whole extent of our coast. The spire in some specimens is much more elevatrd than in others, and the duplication within the umbilicus, is sometimes partially concealed by the projecting callus.

In the collection of the Accademy of Natural Science is a species from Candia, presented by Mr. S. Hazzard, which very much resembles this, but it differs in being destitute of the black line, and in having the umbilicus partially covered from the side, leaving only a linear, semicircular, lateral opening. Another specimen from India strongly resembles it, and is also marked with the black line, but there is only a circumscribed callus extending laterally, leaving a large umbilicus, and marked transversely by a groove.

I formerly referred this species to *N. rugosa*, but it appears to be a much larger species, as Dillwyn states the *rugosa* to be only ten lines long. It is probably the same species as that represented by Lister on plates 562 and 563, but I do not find those figures refered to at all by Dillwyn.

NATICA HEROS.—Shell suboval, thick, rufo-cinereous; within whitish; columella incrassated; callus not continued over the upper part of the umbilicus, hardly extending beyond a line drawn from the base of the collumela to the superior angle of the labrum; umbilicus free, simple.

Length about two inches and a half. Inhabits the coast of New Jersey.

I have two specimens from Great Egg Harbor. It differs from the preceding species in being less dilated, destitute of the black line of the apex, and of the much incrassated projection from the columella so conspicuous in that shell. This is our largest species. I have a specimen more than three inches in length.

I formerly considered this to be *N. rufa*, Gmel., but that species is said by Dillwyn to be only half an inch long, and he refers to Born, t. 17, f. 3, and 4, and also to Lister, Conch. t. 506, f. 3, neither of which figures resemble our species.

[J. A. N. S. vol. ii. p. 257, June, 1822.]

Natica pusilla.—Shell thin, suboval, cinereous or rufous, with sometimes one or two obsolete, dilated, revolving bands; columella callous; callus pressed laterally into the umbilicus, whitish; umbilicus nearly closed and consisting only of an arquated, linear, vertical aperture.

Length about a quarter of an inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

A small species, generally mistaken for the young of one of the preceding species.

Thodoxus reclivatus.—Shell thick, strong, globose-oval, greenish-olive, with numerous, approximate, parallel, irregularly undulated green lines across the volutions; volutions about three, the exterior one occupying nearly the whole shell; spire very short, obtuse at the apex, and frequently eroded to a level with the superior edge of the body whirl; mouth within bluish-white; labrum acutely edged; labium callus, minutely crenated on the edge, and with a very small tooth near the middle.

Greatest diameter nineteen-twentieths of an inch, greatest transverse diameter four-fifths of an inch. Inhabits East Florida. Cabinet of the Academy and Philadelphia Museum.

Animal.—Pale, more or less distinctly lineated, or clouded with black; foot rounded, almost orbicular, hardly as long as the shell is broad; above with four more or less distinct, black, parallel lines; rostrum dilated, truncated, tip with four black lines, a black band connecting the eyes: eyes prominent, appearing to be placed on a tubercle at the outer base of the tentacula, black with a white orbit; tentacula with darker or black lines, setaceous, and longer than the breadth of the rostrum; beneath immaculate.

I found this species in great plenty, inhabiting St. John's river in East Florida, from its mouth to Fort Picolata, a distance of one hundred miles, where the water was potable. It seemed to exist equally well where the water was as salt as that of the ocean, and where the intermixture of that condiment could not be detected by the taste. Its movements are remarkably slow.

CLASS CONCHIFERA.

OSTREA SEMICYLINDRICA.—Shell elongated, semicylindric, white, covered with a fuscous epidermis; sides parallel; base and tip rounded, equally obtuse; inferior valve very convex; superior valve flat; within white, somewhat perlaceous; muscular impression large, white.

Length seven-twentieths of an inch. Inhabits the coast of Georgia and Florida, imbedded in sponges. Cabinet of the Academy and Philadelphia Museum.

This species has the habit and manners of the genus *Vulcella*, but differs from it in having very unequal valves and beaks, and at the same time it differs from the *Ostreas* in being unattached. I found several specimens imbedded in sponges, or interposed between large *Ascidia* and our common *Thethya*, Lam.

PECTEN CONCENTRICUS.—Shell suborbicular, with from eighteen to twenty elevated, rounded ribs, and very numerous simple transverse wrinkles; longitudinal striæ none; one valve somewhat ventricose, pale-yellow, fasciated concentrically with reddish-fuscous or blackish; the other valve convex, brownish-cinereous; auricles subequal; hinge margin rectilinear in each valve; within white.

Length two inches and nine-tenths. Breadth three inches and one-tenth. Inhabits the coast of New Jersey. Cabinet of the Academy and Philadelphia Museum, and Mr. Hyde's collection.

Var. *a*. Somewhat more compressed, variegated.

Although this shell is a large species, and is one of our most common shells, yet I cannot perceive that it has been either figured or described distinctly in any work to which I can refer. The inner margin, particularly between the ribs, is sometimes of a dirty reddish-brown color. I have not seen this species on the southern coast.

The variety occurs on the coast of New England, and several specimens are preserved in Mr. William Hyde's cabinet. One specimen is of a fine bright orange-color, and on one of the valves only are the concentric bands of blackish; the margins, which decline from the beaks, are transversely mottled with white. Another has one valve blackish-brown, with about a dozen rather large white spots on the disk, longitudinally disposed, and white transverse variegations on the umbones and beaks; the margins, which decline from the beaks in both valves, are similarly colored, and varied with transverse white marks; the opposite valve is yellowish-white, with the usual bands. It must, however, be observed, that the epidermis of both these specimens was removed by muriatic acid. It is probable that the examination of numerous specimens, will prove this to be a distinct species; if so, it may be distinguished by the name of *P. borealis*.

PECTEN DISLOCATUS.—Shell suborbicular, with twenty or twenty-two elevated rounded ribs, and very numerous concentric wrinkles; longitudinal striæ none; whitish, tinged with yellow or reddish, with a few narrow, transverse, interrupted and dislocated sanguineous, undulated lines, and five or six pale-reddish, almost obsolete spots on the margin, at the base of the auricles subequal; hinge margin rectilinear in each valve.

Length one inch and a half. Breadth one inch and three-fifths. My Cabinet.

This is a very pretty species, and seems to be confined to the southern coast, where it is rare. It is very different in its colored markings from the preceding species, which, however, it much resembles in form. I have a young specimen, on which the red lines are numerous, but are dilated, pale, and tinted with dull purplish.

PANDORA TRILINEATA.—Shell white, subpellucid, concentrically wrinkled; hinge placed at the posterior slope, which is very abrupt, and forming a very considerably obtuse angle with the hinge margin; hinge margin concavely much arquated, the surface flattened, and bounded on its edges by two elevated approximate lines, originating at the beak and continued to the tip, which is rostrated; rostrum ascending; a distinct, slightly impressed line originates at the beaks, and passes to the middle of the basal margin; right valve a little convex; left valve flat.

Length nine-twentieths of an inch. Greatest breadth nineteen-twentieths of an inch. Inhabits the American coast. Cabinet of the Academy and Philadelphia Museum.

I first discovered a single valve of this curious shell several years ago at Great Egg Harbor, on the shores of New Jersey; since which I have found two or three others on the coast of Georgia and East Florida, so that it may be said to inhabit our whole southern and middle coast. The inner edge of the hinge margin of one valve, closes over that of the other. This species is very different from the *P. inæquivalvis*, particularly in having the hinge placed much further back, and consisting of a mere angle, not prominent; the rostrum also has a direction more upward.

AVICULA HIRUDO.—Var. Shell perlaceous; epidermis reddish-brown, with very numerous undulated wrinkles, which are disposed in radii, and rendered more conspicuous by a white longitudinal line at the junction of each series of wrinkles with its contiguous one.

Width about three-fourths of an inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

It appears to be rare. I have found but a single entire specimen, which is young. In its radiating series of wrinkles, it approximates to *A. morio* of Leach, but differs from it in magnitude, and in being radiated with whitish lines. I have a specimen from the West Indies, which corresponds very well with this, but as it is a much older shell, it is of a much darker color, and the radii are interrupted into abbreviated lines.

A valve of an adult shell also occurred on the southern coast, but so much worn by attrition that its superficial characters are destroyed.

MYTILLUS CUBITUS.—Shell oblong, striated with elevated, subglabrous lines, which are smaller on the anterior side; anterior edge linear, or slightly concave; posterior edge ascending from the base in a right line to a prominent angle, which is rather behind the middle of the shell, from which it descends by a concave line to the obliquely and very obtusely rounded tip; color yellowish, polished and somewhat fasciated with green or brownish, which disappear on the anterior margin.

Length one and one-fifth of an inch. Breadth half an inch. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

This species, seems to be most closely allied to *M. demissus* and *exustus;* from the former it is distinguished, by not having the angle on the posterior side obtusely rounded, and not placed considerably before the middle; and the line of the edge before this angle, is not convex as in that shell. It does not at all correspond with the figures in the Encyc. Method. which are quoted for *exus-*

tus; but it agrees very well, and is probably specifically the same, with the species represented on plate 365 of Lister's Conch., which the author thus defines, "*musculus parvus, subluteus, leviter striatus.*"

MYTILLUS LATERALIS.—Shell transversely suboval, inflated, subpellucid, with numerous concentric wrinkles, anterior and posterior margins, longitudinally ribbed with alternate large and small lines, which crenate the basal margin; intermediate area destitute of longitudinal lines; most prominent part of the shell extending from the beak to the tip of the anterior margin, and bounded on its posterior side by an indented line; epidermis pale-brownish.

Length three-tenths of an inch. Breadth eleven-twentieths of an inch. Thickness seven-twentieths of an inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

Found imbedded in the large *Thethya* of our coast. This shell is closely allied to *Mytillus discors* of Montague.

MYTILLUS HAMATUS.—Shell very much contracted and incurved at the base, which is acute; valves striated on every part of the exterior with longitudinal, elevated lines, which are bifid and sometimes trifid towards the tip; color dark fuscous; within dark purpurescent with a whitish margin.

Length one and one-fifth of an inch. Breadth nearly four-fifths of an inch. Inhabits the Gulf of Mexico. Cabinet of the Academy and Philadelphia Museum.

A common species in the Gulf of Mexico, and is frequently carried to market at New Orleans, attached to the common oyster. It is remarkably distinct from *M. demissus* by the great incurvature of the beaks, by its inferiority in magnitude, and by having the striæ extending over every part of the surface of the shell.

I cannot refer it to *strialulus*, with which it seems to have some affinity, as that species is described to be nearly diaphanous. It seems to have some affinity with the *M. decussatus*, Lam., but is much smaller, and the transverse striæ are not very prominent.

MODIOLA AMERICANA.—Var. Shell oblong, hinge margin elevated in a right line from the beak to the alated angle, from which it declines also in a right line nearly to an equal distance; alated projection rounded; anterior margin short and small; basal margin with a dilated but slightly impressed contraction in the middle; epidermis transversely wrinkled, light-brown, the raised oblique portion of the shell yellowish-white; cortex with membraneous scales and filaments, and covering all the anterior portion of the shell to the beak.

Modiola Americana, Leach. Zool. Misc., vol. 2, *pl.* 72, *fig.* 1. *Var.*

Inhabits the Southern coast. Length from the tip of the angle to the middle of the base, three-fifths of an inch nearly. Breadth one and one-fifth of an inch. Thickness half an inch. Cabinet of the Academy and Philadelphia Museum.

This variety differs from that figured by Dr. Leach, in being always destitute of oblique colored radii.

MODIOLA CASTANEA.—Shell transversely oblong suboval; hinge margin elevated in a right line from the beak to the alated angle, from which it declines in a line slightly arquated; anterior margin rounded at the tip; posterior margin rather large; base with a dilated but slightly impressed contraction before the middle; epidermis concentrically wrinkled, castaneous; cortex not continued behind the middle of the shell; within bluish.

Inhabits the Southern coast. Length, from the tip of the angle to the middle of the base, three-fifths of an inch. Breadth one and one-tenth of an inch. Thickness nearly half an inch. Cabinet of the Academy and Philadelphia Museum.

This species, like the preceding, is furnished with a membranaceous expansion over a portion of the epidermis, giving rise to a number of filamentous processes, by means of which the shell is attached to various marine bodies.

ARCA PONDEROSA.—Shell somewhat oblique, very thick and ponderous, with from twenty-five to twenty-eight ribs, each marked by an impressed line; interstitial spaces equal to the width of the ribs; umbones very prominent; apices remote from each other, and opposite to the middle of the hinge, spaces between them with longitudinal lines as prominent as their corresponding teeth; anterior margin cordate, flattened, distinguished from the disk by an abrupt angular ridge; posterior edge rounded, very short; inferior edge nearly rectilinear, or contracted in the middle.

Length two inches and one-eighth. Greatest breadth two inches and a half nearly. Inhabits the Southern coast. My cabinet.

A remarkable species and readily recognised.

ARCA PEXATA.—Shell covered with a hairy epidermis, transversely subovate, with from thirty-two to thirty-six ribs, placed nearer to each other than the length of their own diameters; umbones moderate; apices approximate, placed far backward very near the posterior termination of the hinge; posterior edge rounded, destitute of an angle; anterior edge rounded, with an angle at the termination of the hinge; inferior edge regularly rounded.

Length one inch and seven-tenths. Breadth two inches and three-tenths. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

A common species, distinguished by the name of the bloody clam. It is covered with a hairy epidermis, and when violently opened, an effusion of a red sanies proceeds from the animal. In the young shell, an angle is perceptible on the posterior edge, at the termination of the hinge margin, but this disappears with age.

ARCA INCONGRUA.—Shell somewhat rhomboidal, with from twenty-six to twenty-eight ribs, placed nearer to each other than the length of their own diameters, and crossed by elevated, obtuse, equal and equidistant lines, which are altogether wanting on ten rays of the disk of the left valve; apices opposite to the middle of the hinge, distant from each other, with a lanceolate space between them, of which the breadth is about one-third of its length; extremities of the hinge margin angulated; posterior edge rounded; inferior edge rounded, that of the right valve extended a little beyond the regular curve in the middle; anterior margin cordate, flattened; anterior edge nearly rectilinear.

Length two inches Breadth rather more than two inches. Inhabits the estuaries of the United States. Cabinet of the Academy and Philadelphia Museum.

This species, which is very abundant on our coast, strongly resembles *A. rhombea,* but agreeably to the figure in the Encyc. Meth., it differs in the width of the space on the hinge margin, in the width of the spaces between the ribs, and in its more rectilinear anterior edge.

ARCA TRANSVERSA.—Shell transversely oblong, rhomboidal, with from thirty-two to thirty-five ribs, placed at nearly the length of their own diameters distant from each other; apices separated by a long narrow space, and situate at the termination of the posterior third of the length of the hinge margin; extremities of the hinge margin angulated; anterior edge, superior moiety rectilinear; posterior edge rounded; inferior edge nearly rectilinear, or very obtusely rounded; on the hinge space one or two angulated lines are drawn from the apex, diverging to the hinge edge.

Length less than seven-twentieths of an inch. Breadth one inch and one-fifth. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

This species which is abundant in some districts, is remarkable by its transverse form, and may be known among the foregoing species, by the apex being situate opposite to one-third of the distance from the posterior termination of the hinge margin.

NUCULA PROXIMA.—Shell subtriangular, oblique, concentrically wrinkled, and longitudinally marked with numerous, hardly perceptible striæ; posterior margin very short and very obtusely rounded, a submarginal impressed line; anterior margin very oblique, and but slightly arquated; umbo placed far back; within perlaceous, polished, edge strongly crenated; teeth of the hinge robust, the posterior series very distinct and regular.

Greatest length, parallel with the posterior margin, three-tenths of an inch. Breadth less than two-fifths of an inch. Inhabits the Southern coast. Cabinet of the Academy.

Very much resembles *N. nucleus*, but is proportionally wider, and the posterior series of teeth is more regular and distinct. It may possibly prove to be only a variety, when numerous specimens are carefully examined and compared.

VENUS NOTATA.—Shell obtusely rounded before, and with a slight undulation on the anterior margin; disk nearly destitute of the elevated concentric striæ which mark the borders of the shell, and distinguished by rufous zigzag transverse lines; within yellowish-white.

Breadth about three inches. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum, and Mr. Wm. Hyde's collection.

A rare species, called the lettered clam. I obtained one specimen at Great Egg Harbor, and another on the coast of Georgia. Mr. Hyde received his specimen from New England; it has the rufous lines very much dilated, but they still preserve the zigzag form.

Venus præparca.—Shell subovate, with numerous, elevated, subacute, parallel, concentric lines, which subside into mere wrinkles near the suture of the ligature slope, interstitial spaces plain; ligament slope flattened, margined by an acute line; anterior margin with an obsolete, longitudinal, very obtuse undulation, which gives the tip of this margin a slightly truncated appearance; areola cordate, elevated at the suture; within white or yellowish; inferior and posterior margins within crenulàted, the crenulæ extending along the edge of the areola to the beak; in advance of the anterior termination of the ligament groove of the left valve, is another distinct groove which receives the edge of the corresponding margin of the other valve.

Width two inches and one-fourth. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

This species bears considerable resemblance to *V. casina,* but that shell is regularly arquated on the anterior margin in Maton and Rackett's figure (v. Trans. Lin. Soc. Lond. 8, pl. 2, fig. 1.) It also approaches *V. rigida,* but is distinct by its cordate areola, &c.

Venus elevata.—Shell subcordate, longitudinally sulcated, sulci equal, numerous, dense, on the anterior submargin sparse; concentric elevated, remote, lamellar bands; anterior margin subangulated at tip; within, margin crenated, crenæ obsolete on the anterior margin, and near the hinge on the posterior margin.

Length four-fifths of an inch. Breadth nine-tenths of an inch. Inhabits the Southern coast. Cabinet of the Academy.

I obtained but a single bleached valve of this species. It certainly approaches very near to *V. cancellata,* but it is distinguished by being much less obtuse before, and by having the longitudinal striæ more numerous. The concentric lamellar bands were eleven in number on this specimen.

Venus inequalis.—Shell subcordate, longitudinally sulcated, lines numerous, obsolete on the anterior margin, behind the middle bifid and alternating with smaller single ones; concentric, distant, lamellar bands, but little more elevated than the longitudinal lines; anterior margin subangulated; within, margin crenate, crenæ obsolete on the anterior margin and rear; the hinge on the posterior margin.

Length one inch. Breadth one inch and one-fifth. Inhabits the coast of the Middle States. Cabinet of the Academy and Philadelphia Museum.

Very similar in form to the preceding, but it is distinguishable by the much less elevated and more numerous bands, and by the bifid, unequal and less numerous longitudinal lines. I have only found them on the coast of New Jersey and Maryland.

VENUS CASTANEA.—Shell thick and ponderous, suborbicular, or subtriangular, with prominent and nearly central beaks; lunule excavated, lanceolate; cartilage slope rectilinear, indented; valves with minute concentric wrinkles, and larger waves; epidermis chestnut-brown, with darker or paler zones; within white, the margin very regularly crenulated.

Length one inch. Breadth one inch nearly. Inhabits the coast of New Jersey. Cabinet of the Academy and Philadelphia Museum.

A very thick shell, not unfrequent on the coast at Great Egg Harbor. The surface is often sculptured with very slightly elevated, obtuse lines, which are sometimes elevated and acute; it very closely approximates to *Venus sulcata* as figured by Maton and Rackett, Trans. Lin. Soc. Lond. vol. 8, pl. 2.

CYTHEREA OCCULTA.—Shell suborbicular, or subtriangular, thick, with very numerous approximate, obtuse, transverse and longitudinal, elevated lines, which are nearer to each other than the length of their own diameters, the longitudinal ones not being visible to the unassisted eye; lunule destitute of the longitudinal lines; color yellowish-white with a few large brown spots, lunule and ligament slope transversely spotted with reddish-brown; margin within entire; anterior cardinal tooth simple.

Length and breadth half an inch. Inhabits the southern shores. Cabinet of the Academy and Philadelphia Museum.

This shell is very rare, and is not to be mistaken for any other shell which I have seen on our coast. The aid of a magnifier is necessary to discover the longitudinal lines.

TELLINA ALTERNATA.—Shell compressed, oblong, narrowed and angulated before, white; numerous parallel, equal, equidistant, impressed concentric lines, which on the anterior margin are alternately obsolete; interstitial spaces flat; within tinged with yellow, a callous line, which is sometimes obsolete, passes from behind the hinge to the inner margin of the posterior cicatrix; anterior hinge tooth emarginate; posterior lamellar tooth very near the cardinal teeth, so as to appear like a primary tooth, that of the right valve wanting; anterior lamellar tooth at the extremity of the ligament; anterior hinge slope declining in a somewhat concave line to an obliquely truncated tip.

Length one inch and one-fourth. Width two inches and one-fifth. Thickness two-fifths of an inch. Inhabits the coast of Georgia and East Florida. Cabinet of the Academy and Philadelphia Museum.

Rather a common shell, beautifully and very regularly striated. When cast upon the beach, one of the valves is very commonly perforated near the hinge; this operation, it would seem, is most frequently performed upon the left valve, as, of ten specimens thus mutilated, I have but two with the perforation on the right valve. It varies in being destitute of the yellow color within. It is probably allied to *T. punicea*, but I have never found it so far north as the coast of New Jersey. It is much more elongated than the latter, the striæ are far more distinct, and it is entirely and always destitute of the rose-colored bands, and lines, such as are represented in Born's figure of that shell. It cannot be the *T. angulosa* of Gmel., as that species is described to be suborbicular, and to have the lateral teeth remote, whereas the *alternata* has but one of the lateral teeth remote.

TELLINA POLITA.—Shell transversely subtriangular, minutely wrinkled concentrically, white, immaculate ; anterior margin rather shorter than the posterior one, the hinge slope declining, in a very slightly arquated line, to a subacute termination; basal margin nearly rectilinear from behind the middle to the anterior termination; a lateral tooth behind the primary teeth.

Length two-fifths of an inch. Breadth thirteen-twentieths of an inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum. Not unfrequently on the beach of South Carolina and East Florida.

[J. A. N. S. vol. ii. p. 302, et seqq., June, 1822.]

Tellina iris.—Shell very thin and fragile, pellucid, compressed, transversely oblong-suboval, iridescent, white, with generally a rosaceous disk and one or two anterior rays, with numerous minute concentric wrinkles, and minute, oblique, acutely impressed, equidistant striæ crossing them; striæ abbreviated before and not attaining the anterior margin, which is narrowed and subacute: basal edge rectilinear opposite to the beaks.

Length more than three-tenths of an inch. Breadth more than eleven-twentieths of an inch. Inhabits the southern shores. Cabinet of the Academy and Philadelphia Museum.

A beautiful little species, very remarkable by the oblique course of the striæ. It is rather common.

Tellina flexuosa.—Shell suborbicular, white; anterior margin longer than the posterior one, and less obtusely rounded; beak placed behind the middle, not prominent; surface obliquely sculptured with very regular, parallel, impressed lines, which, on the anterior margin, are four or five times refracted and infracted alternately; longitudinal striæ none; transverse wrinkles minute.

Length nine-twentieths of an inch. Breadth rather more. Thickness one-fourth of an inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

The fold on the anterior margin is very slight, but perceptible, and is rendered remarkable by the zigzag course of the oblique striæ over it.

Tellina tenera.—Shell very thin and fragile, pellucid, compressed, transversely oblong-suboval, whitish, iridescent, concentrically wrinkled; basal edge arquated, not rectilinear opposite to the beaks; hinge teeth two, larger one emarginate; posterior tooth but little elevated; anterior tooth obsolete; beak placed behind the middle.

Length three-tenths of an inch nearly. Breadth half an inch. Inhabits the coast of New Jersey. Cabinet of the Academy.

Very much resembles *T. iris*, but is destitute of the oblique striæ which are so ornamental to that species, from which it also differs in being arquated on the whole length of the basal edge. It was discovered by my brother Mr. Benjamin Say, near Great Egg Harbor.

PSAMMOBIA LUSORIA.—Shell transversely, oblong-suboval, bluish-white, with minute transverse wrinkles; apex rather nearer the anterior end; anterior margin narrowed, inclining to the left at the end and gaping; cartilage slope rectilinear, with an obtuse, obsolete, convex line on the left valve.

Length three-fifths of an inch. Breadth one inch. Inhabits the Southern States. Cabinet of the Academy and Philadelphia Museum.

This shell does not appear to be very common. It seems to vary in having often two teeth on each valve, as in *Sanguinolaria*.

DONAX VARIABILIS.—Shell triangular; anterior margin obliquely truncated, cordate, suture a little convex; posterior hinge margin nearly rectilinear, suture indented; base a little prominent, beyond a regular curve, near the middle; valves longitudinally striated with numerous, equal, parallel, regular, impressed lines, hardly visible to the unassisted eye, and obsolete on the posterior margin; basal edge within crenate.

Length half an inch. Width nine-tenths of an inch. Thickness seven-twentieths of an inch. Inhabits the coast of Georgia and East Florida. Cabinet of the Academy and Philadelphia Museum.

Varies very much in color and is a very pretty shell. Its usual varieties are red, white, yellow, or elegantly radiated with dilated reddish-brown lines, upon a white or yellow ground; lines are purpurescent within the shell. A very common shell; I found it more particularly numerous on the beach of Cumberland island, where, in favorable situations, at the recess of the tide, it may be taken up in handfuls, without any intermixture of sand. It is very distinct from *D. rugosa*, but approaches much nearer to *D. trunculus*, from which it is distinguished by being more abruptly truncated before, smaller, and the longitudinal lines are more indented. I have no doubt but this species has been regarded, by authors, as the same with *trunculus*, if so, judging by an individual of that species in the collection of the Academy, at least two distinct species have been confounded together under that common name.

DONAX FOSSOR.—Shell subtriangular; anterior margin short and rounded; posterior hinge slope rectilinear; base very slightly prominent beyond a regular curve at the middle; valves longitudinally striated with numerous, equal, parallel, regular impressed lines, not visible to the unassisted eye, and obsolete on the posterior margin; basal edge within crenate; color pale-livid, with two longitudinal whitish rays before the middle, both within and without.

Var. *a.* Whitish. Var. *b.* Yellowish. Breadth from half an inch to three-fifths. Inhabits the coasts of New Jersey and Maryland. Cabinet of the Academy and Philadelphia Museum.

Very numerous under the surface of the sand, which is exposed at the recess of the tide. A wave, by removing the surface of the sand, exposes a great many individuals to view, at its refluence; these immediately penetrate the sand, and before the recurrence of the surge they are concealed.

They are preyed upon by several shore birds and fish; the drum (*Sciæna chromis*) and sheep's-head (*Spurus ovicephalus*) are sometimes caught in the surf in considerable numbers, whilst in pursuit of them.

AMPHIDESMA ORBICULATA.—Shell orbicular, somewhat compressed; beak nearly central, and a little prominent; posterior slope a little concave near the beak; lunule small; valves slightly wrinkled transversely; anterior submargin with an obsolete very obtuse undulation, and with a few longitudinal obsolete lines; color dirty white; hinge with two lamellar teeth, the posterior one placed near to the primary tooth, and shorter than the anterior one; interior ligament cavity profound, fusiform, parallel with the anterior slope, originating at the extreme tip of the beak, and terminating nearly opposite to the middle of the anterior lamellar tooth.

Length one inch and one-tenth. Breadth one inch and one-tenth. Inhabits the coast of Georgia. Cabinet of the Academy and Philadelphia Museum.

Appears to be a rare species; the largest I have seen is one inch and two-fifths in breadth.

AMPHIDESMA ÆQUALIS.—Shell orbicular, slightly oblique, polished, white, with very minute and numerous concentric wrinkles near the margin, which are obsolete on the disk and umbo; lateral teeth none; primary teeth two in the left valve and one in the other; interior ligament cavity subfusiform, as long as the exterior ligament.

Length two-fifths of an inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

A small species, not very commonly found.

AMPHIDESMA PUNCTATA.—Shell orbicular, white, with very minute, numerous, concentric wrinkles, and very minute, numerous punctures; lateral teeth none; primary teeth two in each valve, of which one has a deep groove, which gives it a bifid appearance; groove of the interior cartilage not very distinct; within a small projecting rim or elevated line near the edge extends from the hinge to the basal margin.

Length about seven-twentieths of an inch. Breadth much the same. Inhabits the southern shores. Cabinet of the Academy.

This shell bears a strong resemblance to the preceding, on an exterior and transient view of its valves; but on examination it will be perceived to be more orbicular and less oblique, and that the surface is less polished. By the aid of a magnifier, the surface will be observed to exhibit a remarkable punctured appearance.

MACTRA SIMILIS.—Shell subtrigonate, smooth, or very slightly wrinkled, white on the disk or upon the umbones, and dirty light brownish color on the margin; umbones nearly central; lateral teeth strongly and regularly crenated on the side next the recipient cavity.

Length one inch and three-twentieths, nearly. Width one inch and two-fifths. Inhabits the coast of the United States. Cabinet of the Academy.

The specimens which I obtained from the coast of New Jersey seem closely allied to Var. *a.* of *M. solida* as presented on pl. 258, fig. 1, of the Encyc. Method., the proportions of the different parts of the shell nearly corresponding with those of that figure. But upon comparing it with several specimens of *M. solida* sent to the Academy by Mr. O'Kelly of Ireland, I find its proportions to be altogether different, being longer and not so wide.

MACTRA LATERALIS.—Shell triangular, very convex, of a smooth appearance, but with very minute, transverse wrinkles; lateral margins flattened, cordate, with a rectilinear, sometimes concave profile, one margin rounded at the tip, the other longer and less obtuse; umbo nearly central, prominent.

Length half an inch. Breadth thirteen-twentieths of an inch. Thickness seven-twentieths of an inch. Inhabits the coast of the

United States. Cabinet of the Academy and Philadelphia Museum.

A very common shell on almost all parts of our coast.

Mactra oblonga.—Shell transverse, oblong-oval; very slightly wrinkled, excepting upon the margin; umbo hardly prominent; two strong distant lines or folds drawn from the apex to the anterior extremity of the shell; color dull whitish, hardly polished, umbo slightly tinged with ferruginous, within white, highly polished.

Length nine-twentieths of an inch. Breadth one inch and nine-tenths. Inhabits the coast of Georgia. Cabinet of the Academy and Philadelphia Museum.

Of this species I found but three valves, on one of the sea islands of Georgia.

Lutraria lineata.—Shell transversely suboval, thin white, tinged with ferruginous; posterior hiatus patulous, anterior one linear and commencing below the hinge slope; hinge slope with a rectilinear profile, and flattened, oblong-subcordate surface; valves unequally wrinkled; posterior margin rounded, short, with a reflected edge, and submarginal carinated line; within undulated, anterior margin glabrous, and with an indented submarginal line corresponding with the exterior carinated one.

Length one inch and nine-tenths. Width two inches and seven-tenths. Thickness one inch and one-twentieth. Inhabits the coasts of Georgia and East Florida. Cabinet of the Academy and Philadelphia Museum.

Not uncommon on the southern coast, and may be readily distinguished by the carinated line on the posterior submargin.

Lutraria canaliculata.—Shell transversely oval-orbicular, very thin and fragile, white, inflated; valves equally, concentrically, and regularly grooved, very feint parallel lines within the grooves; posterior margin short, subcuneiform, compressed; a marginal, longtudinal, irregular, subimpressed line, between which and the edge the grooves become mere wrinkles; posterior slope subrectilinear, hiatus considerable; anterior margin regularly curved, the slope convex; within grooved as without, anterior angle glabrous.

Greatest length two inches and one-twentieth. Breadth two inches and a half. Thickness one inch and one-fourth. Inhabits the coast of the United States. Occurs on the coast of Maryland

and as far south as East Florida. Cabinet of the Academy and Philadelphia Museum.

Very distinct from the preceding species, and probably approaches *L. crassiplica* of Lamarck.

CORBULA CONTRACTA.—Shell transversely subovate; valves subequal, regularly and profoundly striated transversely; beaks not prominent, nearly central, one side rounded and the other subacute; basal margin contracted near the middle, and one half of the length of the edge of one valve concealing one half of the edge of the opposite valve.

Length one-fourth of an inch. Breadth two-fifths of an inch. Thickness one-fifth of an inch, nearly. Inhabits the coasts of Georgia and East Flarida. Cabinet of the Academy and Philadelphia Museum.

I found two specimens of this shell. The striæ are precisely similar to those of the larger valve of *Mya inæquivalvis* of Montague (*C. nucleus* of Lam.)

MYA ACUTA.—Shell oblong-subovate, narrowed behind, rather strongly wrinkled; posterior hinge margin and posterior basal margin subequally arquated; tip of the posterior margin equidistant from the apex and middle of the base; tooth moderate, with a small, not prominent, tooth on its posterior side.

Length one inch and a half. Breadth two inches and four-fifths. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

I have but two valves, which are old and bleached. It resembles *M. arenaria*, but is much smaller at the posterior termination, than the corresponding part of that shell, as figured by Bruguiere. One of the valves alluded to is more than four inches in breadth; it corresponds very well in the outline with Pennant's fig. of *arenaria*. My decorticated specimens have an obsoletely radiated appearance.

MYA MERCENARIA.—Shell subovate, convex, somewhat unequal, transversely wrinkled; posterior hinge margin curving abruptly downward to the tip of the posterior margin, which is much nearer to the middle of the base than to the apex; tooth robust, prominent, very convex within, and with a small tooth on its posterior side; within white.

Length one and three-tenths of an inch. Breadth two inches. Inhabits the coast of the United States. Cabinet of the Academy and Philadelphia Museum.

This species, as well as the preceding, is known by the name of the *Maninose* or *Piss clam*, from the circumstance of its occasionally ejecting a sudden jet of water, to a considerable height above the surface of the sand, during the refluence of the tide. This jet may be commanded by stamping upon the sand with the foot, near the entrance of their dwelling; it is sometimes brought to our markets, and is by many persons highly esteemed as food; it is said by some to be preferable to the common clam, (*Venus mercenaria.*)

ANATINA PAPYRATIA.—Shell turgid, very thin and fragile, transversely ovate, one valve very convex, and at the basal margin projecting a little beyond the edge of the other; beaks not prominent, placed near one end; surface of the valves very slightly wrinkled, white; shorter margin a little gaping, and with a longitudinal wave; tooth very oblique.

Inhabits the southern coast. Length two-fifths of an inch. Width thirteen-twentieths of an inch. Thickness one-fourth of an inch. Cabinet of the Academy and Philadelphia Museum.

This species does not appear to be very common.

SOLEN COSTATUS.—Shell transversely elongate-oval, concentrically wrinkled, very much compressed, very thin and fragile. rounded at each end; hinge nearly equidistant from the posterior termination of the shell and the middle of the hinge margin; teeth two, sometimes none, in each valve, the posterior one upright, the other inclining forward; a strong, broad, elevated line within passes from the hinge towards the base and becomes obsolete near that part; color pale violaceous, with about three whitish rays.

Breadth one inch and a half. Inhabits Great Egg Harbor, New Jersey. Cabinet of the Academy.

Rather rare, I have obtained but few and incomplete specimens. The internal costa is somewhat similar to that of *S. legumen,* but it is much more elongated, and does not incline obliquely forward, as in that shell; it probably approaches nearest to *S. minimus* of Tranquebar.

SOLEN CENTRALIS.—Shell transversely oblong-oval, slightly wrinkled concentrically, compressed, fragile, rounded at each end; hinge central, teeth two in the left valve and one in the right; epidermis pale yellowish-brown; a broad, obsoletely elevated line within passes from the hinge towards the base, and termiuates beyond the middle.

Length half and inch. Breadth one inch and three-tenths. Inhabits the southern shores. Cabinet of the Academy and Philadelphia Museum.

Somewhat rare. It has very much the appearace, at first sight, of the young of *S. carabæus*, but it cannot be mistaken for it, as the teeth of the hinge are invariably central, whilst those of that species are anterior to the centre, and the interior of the shell of that species has never the slightest appearance of a costa.

Solen viridis.—Shell fragile, elongated, compressed, a little narrowed before, slightly wrinkled concentrically, the wrinkles regularly rounded towards the extremity; hinge margin nearly rectilinear; basal margin a little arquated; anterior tip rounded; posterior tip obliquely truncated, a little reflected, and rounded near the base; hinge terminal; teeth one in each valve, each having a flattened vertical surface, which turns upon that of the opposite tooth; epidermis pale green.

Length nine-twentieths of an inch. Breadth two and three-twentieths of an inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

A common shell. The hinge is formed upon the same plan with that of the *S. vagina* and *truncatus*, but it differs from those species, in being much more rounded at each extremity, and in being narrowed at the anterior tip. I think it probable, however, that this species has been regarded as a variety of *S. truncatus*.

Solemya velum.—Shell remarkably thin and fragile, transversely-oblong, rather longer at the posterior end; hinge edentulous, placed near the anterior end, with a slightly prominent cartilage, and an interior elevated callus, which is fornicated beneath; valves radiated with about fifteen double lines, which are sparse towards the middle of the valves; epidermis pale yellowish-brown, extending much beyond the basal and lateral edges of the valves, and at the hinge margin, connecting them together nearly the whole length of the shell; within bluish-white; umbo destitute of the slightest elevation; anterior and posterior margins rounded; superior and inferior margins rectilinear, parallel.

Length seven-twentieths of an inch. Breadth nineteen-twentieths of an inch. Inhabits the southern coast. Cabinet of the Academy.

Occurs sometimes cast on shore, generally in fragments, but is by no means a common shell.

Saxicava distorta.—Shell thick, inequal, rugged, transversely oblong-subovate; epidermis pale-brownish, much wrinkled; umbo prominent, placed very far back; posterior margin rounded, generally very short; anterior margin often truncated, with a prominent ridge passing from its inferior angle to the beak.

Length about three-fifths of an inch. Width about one inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

When young, it is generally more or less contracted near the middle of the basal margin, but this character decreases as the shell increases in size, until it disappears entirely in the adult state. It is in other respects variable in form and proportion, the beaks are rarely placed so far back as to be parallel with the tip of the posterior margin; it much resembles *Mytillus rugosus* of Lin., but appears to be a much thicker shell. It is generally imbedded in our large *Thethya,* Lam., and not unfrequently intervenes between the substance of the *Thethya* and the sides of a large *Ascidia,* which also attaches itself to that animal. It is also sometimes found in a species of *spongia*. *Pinnotheres byssomia* of this Journal, inhabits this shell. The young shell is furnished with a prominent incrassated hinge tooth, which closes into a corresponding depresssion in the opposite valve; but this tooth disappears with age.

It is referrible to the genus *Pholeobia* of Leach.

Petricola fornicata.—Shell transversely elongated, posterior side very short; anterior side a little gaping; hinge and basal margins subparallel; valves longitudinally radiated with elevated lines, which, anterior to that which terminates at the middle of the base, are alternately more or less prominent, filiform, and all posterior to that line are fornicated costa; concentric wrinkles numerous, more remarkable on the anterior margin; lunule ovate-acute, simply sculptured with the concentric wrinkles; within radiated with strongly indented lines, which, on the anterior margin, are obsolete; teeth two, rarely three, on each valve, one of which is bifid at tip or grooved on the inner side, and the other usually not prominent above the margin.

Length three-fifths of an inch. Width one inch and seventenths. Thickness eleven-twentieths of an inch. Inhabits the coast of North America. Cabinet of the Academy and Philadelphia Museum.

This shell, which has very much the aspect of a *Pholas*, is not uncommon, but is more abundant on the southern coast. It approaches *P. pholadiformis* of Lamarck, but differs in not being "subglabrous before."

Pholas oblongata.—Shell thin, white, transversely much elongated; basal and hinge margins nearly parallel; anterior and posterior margins rounded; valves transversely and longitudinally striated, the striæ muricated and elevated on the anterior side into costæ, which are more prominently and densely muricated; hinge callus polished, minutely striated transversely and longitudinally, and with about twelve cells, anterior to which is a recurved margin of the shell, forming a cavity; dentiform process dilated, incurved, spoon-shaped, emarginate on the posterior side, and irregularly truncated at tip.

Greatest length, one and one-fifth. Breadth, four inches and two-fifths. Inhabits Georgia, Carolina, and East Florida.

Very common on the southern coast, penetrating compact mud or clay. Small clods of this clay are often rolled ashore by the waves, either containing this species, or exhibiting proofs of having been its habitation, by the numerous perforations with which they are distinguished. In many places, where a bed of this mud is barred by the refluent tide, these shells may be seen in considerable numbers, with a portion of the smaller side appearing above the surface. It is proportionally broader than the shell figured by Lister, plate 423, and it seems to be allied to *P. campechensis*.

Pholas truncata.—Shell white, transversely oblong, subpentangular; anterior margin rostrated, obtusely cuneiform in the middle; posterior margin broadly truncated at tip; valves transversely wrinkled and longitudinally striated, muricated, particularly on the anterior side, with small erect scales, which are not arched beneath; posterior margin, from a line extending from the beak to the inferior angle of the truncature, destitute of the striæ and mutic; hinge callous, formed of the duplicature of the hinge margin, and destitute of cells, a small tooth upon the inner margin, projecting backward; dentiform process curved, prominent, slender, flat.

Length three-fourths of an inch. Breadth one inch and seventenths. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

A common shell. Pennant, in his observations upon *P. parva*, says, "I have a piece (of wood) filled with them, which was found near Pensacola, in West Florida." May this not have been the young of our *truncata;* or have we in reality the *parva* to add to our catalogue? Pennant's figure (volume iv. British Zool., pl. 40, fig. 13,) of that species does not represent a truncature at the posterior side of the shell; otherwise ours might be supposed to be a variety of it, although it attains to a much larger size.

Pholas cuneiformis.—Shell subcuneiform; anterior margin nearly closed, transversely truncated from the hinge; the surface transversely striated in an undulated manner, with elevated, minutely crenate lines; the interstitial lines smooth; these lines partially interrupt a profoundly impressed longitudinal sulcus, which passes from the beak to near the middle of the base; the inferior portion of this margin is destitute of striæ; posterior margin attenuated by nearly rectilinear edges, to a rounded tip; surface transversely wrinkled; hinge callous, composed of the reflected margin, which forms a cavity before, and is destitute of cells; dentiform process incurved, slender, filiform; hinge plate ovate-triangular, with a short projecting angle on the anterior middle, and subacute behind; within, disk slightly contracted by an elevated line corresponding with the external sulcus.

Length nine-twentieths of an inch. Width four-fifths of an inch. Inhabits the southern coast. Cabinet of the Academy and Philadelphia Museum.

Is often cast ashore in old wood, which it penetrates. It bears some resemblance in form to the shell represented in the Encyc. Method., t. 170, fig. 5, &c. Its longitudinal sulcus is very similar to that of *P. crispata*, but in many other respects it is closely allied to *P. pusillus*, and like that species it is distinguished by two elongated lamellar plates, which cover the sutures of the posterior junction of the valves.

TYPE AND CLASS ANNULOSA CIRRIPEDES.

Family BALANIDEA.

CONOPEA.—Shell sessile, fixed, composed of two cones joined by their bases, the lines of junction carinate each side; inferior cone entire, attached by its anterior side and tip to marine bodies; superior cone formed of six united pieces, with an aperture at the summit, closed by a quadrivalved operculum.

CONOPEA ELONGATA.—Shell elongated before and behind into compressed processes; posterior valves of the operculum more prominent and truncated at tip.

Inhabits the southern coasts on *Gorgonia virgulata*, Lam. Cabinet of the Academy and Philadelphia Museum.

Anterior and posterior processes very much compressed, acutely edged above and beneath, and usually as long as the body of the shell; shell generally covered with a dirty brown epidermis, beneath which it is white, with rufous clouds and lines; posterior valves of the operculum larger, more prominent, truncated or widely emargimate at tip.

Balanus galeatus, an inhabitant of the Asiatic ocean, a species long known, and described by various authors, is congeneric with the species here described. The peculiar characters of these shells, their general appearance and their habitat will not admit of their being referred to the genus *Balanus* in a perfectly natural arrangement. I have therefore thought it necessary to frame the present genus for their reception.

The anterior process of the *elongata* is generally acuminated and longer than the posterior one, which is more compressed, and is generally more or less elevated from the branch of the *Gorgonia*, upon which the anterior process and the basal cone are firmly attached.

Bruguiere informs us that the *galea* is obtained from great depths in the ocean only; but I have found the *elongata* in considerable numbers in inlets of the bay of Charleston, on *Gorgonia*, which at the recess of the tide was visible on the surface of the water.

This species, like the *galea*, is often found coated over with the cortical envelope of the *Gorgonia*, and the animal destroyed, probably by its encroachment.

CORONULA DENTULATA.—Shell depressed-conic; base oval; height equal to about one-third of the base; valves and interstices smooth, the anterior valve largest, and the posterior one smallest; operculum transversely striated, the posterior pair of valves with a submarginal impressed line, from which to the edge are drawn three or four other impressed lines.

Found on the clypeus of *Limulus Polyphemus*. Collection of the Academy and Philadelphia Museum.

The posterior margins of the posterior valves of the operculum, are divided by the impressed lines into three or four broad, flat, dentiform divisions, which, however, but simply crenate the edge.

[J. A. N. S. Vol. ii. p. 378, et seqq. Dec. 1822.]

LYMNEUS HUMILIS.—Shell ovate-conic, thin, translucent, with slight wrinkles; volutions nearly six, convex, terminal one very minute; suture well indented; aperture about equal in length to the spire; labium with an obvious plate of calcareous deposit; a distinct and rather open umbilical aperture; color pale reddish-white or yellowish-white.

Total length seven-twentieths. Inhabits South Carolina.

Of a dozen specimens sent me by Mr. Elliott, none exceeded the limit here assigned to the species. It differs much from any other species I have seen; a variety of it, sometimes quite black, was found by Dr. M'Euen at Oswego, on the Susquehanna.

It may be useful here to remark that, in consequence of a typographical error in the first part of the second volume of this work, the species above described may be confounded with the *desidiosus*. The length of that shell is erroneously stated to be seven-twentieths of an inch, instead of seven-tenths, its true length.

PALUDINA GRANA.—Shell conic-ovate; whorls not perceptibly wrinkled, convex; suture deeply impressed; aperture orbicular, hardly angulated above; labium with the superior edge appressed to the surface of the penultimate volution; umbilicus rather small, profound.

Length less than one-tenth of an inch. Inhabits Pennsylvania.

This very small species is found in plenty in the fish ponds at Harrowgate, crawling on the dead leaves which have fallen to the bottom of the water. It resembles *P. lustrica*, but is a smaller, less elongated shell, and the superior portion of the labium is not an unaltered continuation of the lips as in that shell, but is appressed to the surface of the penultimate whorl in the usual manner of calcareous deposition upon that part.

MELANIA CATENARIA.—Shell conic, blackish; whorls seven or eight, slightly undulated transversely, and with eight or nine revolving, elevated lines, the four or five superior ones of which are almost interrupted between the undulations.

Length less than half an inch. Inhabits South Carolina.

The essential specific character resides in the catenated appearance of the superior revolving lines of the whorls, resulting from their being more prominent on the undulations which they cross, than between them, where they are often obsolete. This species was sent to me by Mr. Stephen Elliott, who obtained it in limestone springs, St. John's, Berkley.

MELANIA MULTILINEATA.—Shell gradually tapering; apex generally much eroded; whorls about seven, a little convex, with numerous, filiform, elevated, subequal lines, which are from ten to twenty in number on the body whorl.

Length nineteen-twentieths; greatest width two-fifths of an inch. Inhabits tributaries to the Delaware.

I found several specimens of this shell in Frankford Creek; and Professor Vanuxem presented me with others which he obtained from a creek in New Jersey. The *M. elevata*, (p. 176 of this work,) from its attributed specific characters, might be supposed to be nearly related to this shell, but it differs in being of a more accurate conic form, the whorls being flattened, and not convex as in this species; its raised lines are also few in number.

CYCLAS RHOMBOIDEA.—Shell transversely orbicular-rhombiform, subequilateral, pale, with elevated somewhat regular transverse lines; umbo not prominent.

Breadth more than one-fourth of an inch. Inhabits lake Champlain.

It is probable that this species attains to a somewhat larger size than the two specimens from which the above description was taken, and which were found by Mr. Augustus Jessup. It is distinguishable from *C. similis* by its more rhomboidal form.

CYCLAS PARTUMEIA.—Shell thin and fragile, transversely-suborbicular, with small, irregular, inequidistant, concentric wrinkles, and larger adventitious undulations; base rounded; anterior and posterior edges nearly central; hinge teeth prominent and distinct; lateral teeth prominent, white; within impressed by the exterior undulations, and bluish-white on the margin and submargin.

Length nine-twentieths; breadth eleven-twentieths of an inch.

This species was found by Mr. William Hyde, in a pond near Germantown, in plenty. In comparison with *C. similis*, it is thinner, more transparent, not flattened at base, more obtusely rounded each side, and instead of grooves of some degree of regularity as in that shell, it is sculptured with irregular wrinkles and waves. Mr. Hyde took fifty young ones out of a single specimen.

N. B. The genus Cyclas was inserted into this essay inadvertently; the species, however, are new.*

[*The title of the paper being "Description of Univalve, &c., Shells. —ED.]

[J. A. N. S. vol. iv. p. 368, et seqq., 1825.]

MODIOLA.—Amongst a number of marine shells from the island of Minorca, presented to the Academy by Dr. Alexander Montgomery, of the U. S. Navy, is a single valve of the *Pecten nodosus*, Linn., on which were several elevations that, on a cursory glance, presented an appearance not unlike the *Balanus*. On a more particular inspection, each elevation proved to be similar to the others in form and consistence, and to be composed of fine dark colored sand, agglutinated together, attached by a broad base to the surface of the Pecten, and rising in the shape of a very low cone around an included shell, the visible portion of which is exactly cordate. Having carefully detached the mass, I found the imbedded shell to be a *Modiola*, closely allied to the *discors*, Gmel., with its byssus very firmly affixed to the supporting surface.

The following is a description of this shell:

MODIOLA OPIFEX.—Oval, reddish-brown; anterior hinge-margin flattened, cordate; within iridescent.

Base contracted behind the middle, the contraction not wide not very deep; between this part and the beaks the surface is blackish and transversely wrinkled; posterior and anterior surface of the valve longitudinally striated, with the exception of the anterior cordate hinge-margin, which is flattened and covered by a thick stratum of compact sand; anterior tip equally arcuated above and below; within iridescent, brilliant, striated as on the exterior surface, edge crenate.

Breadth nearly half an inch; length more than one-fifth of an inch.

This species differs from the *M. discors*, and *M. lateralis*, nob., not only by its very singular habit, but also by its flat and perfectly heart-shaped anterior margin; the regular and equal curvature of its anterior extremity; the narrower interval between the anterior and posterior striated surfaces, and the more profound and less dilated basal contraction.

Pl. xix. fig. 2. *M. opifex* imbedded in its mound. *a*. External view of a valve. *b*. Internal view of a valve, (all enlarged.)

[Included on pl. 70.—Ed.]

[J. A. N. S., vol. v. p. 122, et seqq., Sept. 1825.]

Lymneus modicelles.—Shell blackish, not elongated: whorls rather more than four, convex; suture deeply impressed; apex acute; aperture very regular, the labium and labrum being subequally curved; the fold of the columella rather slight.

Total length seven-twentieths of an inch; breadth one-fifth; length of the aperture one-fifth.

Smaller than any of the species I have hitherto described. It was found by Dr. M'Euen at Oswego, on the Susquehanna river near the State of New York.

Lymneus obrussus.—Shell oblong, rather slender, pale yellowish testaceous; whorls five, slightly rounded; apex acute: suture deeply impressed; aperture not dilated, within pure white; columella with the sinus of the fold very obvious.

Lister, *pl.* 114, *fig.* 8?

Total length nine-twentieths of an inch; aperture one-fourth; breadth nearly one-fifth.

All the individuals that have occurred were covered with an earthy slime. They inhabit a small rivulet below the fish-ponds at Harrowgate, the seat of my friend Mr. J. Gilliams.

Lymneus pinguis.—Shell oval, rather ventricose, pale, dirty yellowish; whorls nearly four, rapidly diminishing to the apex, which is dull fulvous; suture moderate; spire rather more than half the length of the aperture; aperture large; labrum with the inner margin a little thickened.

Total length eleven-twentieths of an inch; aperture rather more than seven-twentieths; breadth seven-twentieths.

Proportionally shorter and much more dilated than other species of the country, with the exception of *L. macrostomus*, nob., from which it is readily distinguished. It inhabits the Delaware and Schuylkill rivers near Philadelphia, in company with *L. catascopium*, nob.

Lymneus galbanus.—Shell subovate; whorls nearly five, very convex; suture very deeply impressed; apex acute; body whorl a little flattened in the middle; aperture not dilated; columella with the sinus of the fold very obvious.

Length three-tenths of an inch: aperture rather more than half the whole length.

For this shell I am indebted to Mr. Nuttall, who obtained it in a marl pit near Franklin, New Jersey. He considers it fossil, as well as numerous specimens of *Planorbis campanulatus*, *Valvata tricarinata*, and *Physa heterostropha*, found with it. I have never seen a recent specimen, but the present corresponds with some individuals belonging to the Philadelphia Museum, also said to be fossil.

Physa ancillaria.—Shell heterostrophe, subglobose, pale yellowish; whorls rather more than four, very rapidly attenuated; spire truncated, hardly elevated beyond the general curve of the surface; suture not impressed; aperture but little shorter than the shell, dilated; labrum a little thickened on the inner margin.

Length more than one-half of an inch.

The spire of this species is unusually short, truncated at tip like the *Paludina decisa*, nob.; and the suture is so inconspicuous as to give rise to the name which I have chosen for it. My brother, B. Say, obtained it in the Delaware river near Easton, and Mr. Jessup collected numerous specimens in the Connecticut river, above Hartford. It may be distinguished from *P. heterostropha*, nob., by the shorter and truncated spire, inconspicuous suture, as well as by the more obtusely rounded junction of the labrum with the base, and by the general form.

PALUDINA SUBGLOBOSA.—Shell subglobose; whorls three and a half, much rounded, rapidly enlarging; suture profoundly impressed; aperture subovate; umbilicus very narrow, nearly closed by the labrum; spire very short, convex.

Inhabits the North-western Territory. Length less than three-tenths of an inch.

I obtained this shell when traversing the North-western part of the Union. It is much larger than the *porata*, nob., which it resembles considerably, but its whorls are much more rapidly enlarged, and the umbilicus is much narrower.

MELANIA SIMPLEX.—Shell conic, blackish, rather rapidly attenuated to an acute apex; suture not deeply impressed; volutions about eight, but little rounded; aperture longitudinal; within dull reddish; labrum with the edge not undulated, or but very slightly and obtusely so near the superior termination.

Length three-fifths of an inch; greatest breadth three-tenths.

For this species we are indebted to Professor Vanuxem, who presented several specimens to the Academy. He informs me that he obtained them in Virginia, in a stream running from Abingdon to the Salt Works, and from the stream on which General Preston's grist-mill is situated, near the Salt Works, as well as in a brook running through the salt water valley, and discharging into the Holstein river. Near the summit the whorls are marked by an elevated line near their bases.

It cannot be mistaken for the *conica*, nob., for in that species the aperture is obviously oblique.

MELANIA PROXIMA.—Shell conic, rather slender, black, gradually attenuated to the truncated apex; suture moderately impressed; aperture longitudinal, within milk white; labrum with the edge not undulated, or but very slightly, and obtusely so near the superior termination.

Length to the truncated apex, nearly three-fifths; greatest breadth less than one-fourth of an inch.

Professor Vanuxem obtained this species in a small brook which discharges into the Catawba river, near Landsford, Chester district, South Carolina, and also in the Warm Springs, Buncombe county, North Carolina, and in the French Broad river, of the same county. It resembles the preceding very closely, but is decidedly more slender, and like that shell it has two elevated lines on the inferior margin of terminal whorls. The interior of the aperture in many specimens is of a dull reddish color, and in some the same part exhibits the appearance of two or three obsolete bands. Another variety, which Mr. Vanuxem obtained from a limestone spring near Broad river, Spartanburg district, South Carolina, is of a pale horn color. In a stream of the Saluda range of mountains near Mill Gap, in Rutherford county, he found another variety of a somewhat smaller size, tinged with reddish-brown, and generally distinctly banded within the aperture; one of these specimens is very remarkably truncated, presenting only about one whorl and a quarter. The same variety also inhabits a brook near the Table rock. A variety which seems to differ from the latter only in size, was found by Mr. Vanuxem near Douthard's Gap, of the Saluda mountains; the largest specimen he sent from that locality is only about three-tenths of an inch long.

MELANIA SUBGLOBOSA.—Shell subglobose, brownish horn color; spire but little elevated, not half the length of the aperture; volutions about four; aperture rounded, nearly as broad as long; within more or less tinged with dull red; labium a little flattened.

Length three-fifths of an inch, greatest breadth eleven-twentieths of an inch.

Professor Vanuxem found this curious shell in the north fork of the Holstein river, Virginia, where they are extremely abundant. In the old shells the surface, and particularly that of the spire, is considerably corroded, presenting the appearance of having received a fortuitous deposition of calcareous matter. This corrosion, however, does not extend to the destruction of any of the whorls, as is the case with many shells, but its effects seem to be confined to the exterior. It is a second species of my proposed genus ANCULOTUS.

All the striæ of the operculum are concentric to the superior angle.

PIRENA SCALARIFORMIS.—Shell turreted, gradually tapering to the apex, which is acute; whorls rounded, crossed by numerous elevated, regular lines, which, on the body whorl, are terminated near the base by five or six more or less profound revolving grooves; suture pretty deeply impressed, with generally one of the grooves above it, so as to appear double; color pale, with several revolving reddish-brown lines; aperture rounded: labrum thickened, somewhat recurved; a slight but very obvious sinus at base, and another very slight, more obtuse one near the junction with the preceding whorl; umbilicus none.

Length nine-tenths of an inch.

Mr. Titian Peale found this handsome and curious shell in great abundance in the fresh water lakes of the Florida Keys. It is most certainly a fresh water shell, yet it is destitute of an epidermis. The labrum thickens with age; the operculum is orbicular, and so small as to admit of the animal retiring one half the length of the shell. It differs from *Melania*, *Melanopsis*, and *Pirena*, in the rotundity of the aperture, the thickened labrum, and comparative smallness of the operculum.

The tentacula of the animal are two in number, and the eyes are placed a little above their exterior base.

[J. A. N. S., vol. v. p. 129, et seqq. Nov., 1825.]

FUSUS FLUVIALIS.—Shell fusiform, olive-green or brownish; spire much elevated, gradually tapering; volutions nearly six, wrinkled across, and with a series of elevated undulations on the middle; suture consisting only of an impressed line; aperture somewhat fusiform; within whitish, more or less with dull reddish, and with several lines of that color, sometimes confluent; labrum on the inner margin immaculate, edge undulated; canal rounded at tip; columella very concave.

Length one and eight-tenth inches; aperture nineteen-twentieths of an inch; greatest breadth nineteen-twentieths of an inch.

Professor Vanuxem found this curious and highly interesting shell on the north fork of the Holstein River, near the confluence of a brook of salt water. From the name of the genus it might reasonably be supposed to be a marine shell, but it has never been discovered on the coast, and seems to be limited to a very small district of the Holstein River, in company with *Unio cariosus*, *subtentus*, nobis, *Melania subglobosa*, nobis, and no doubt other fluviatile shells. When the inhabitant becomes known it may authorize the formation of a new genus, but there appear no characters in the formation of the shell that would really distinguish it from *Fusus*.

Unio subtentus.—Oblong-oval, subcompressed, slightly contracted at the middle of the base, dull yellowish brown; beaks not prominent, decorticated; dorsal edge regularly arcuated, without any appearance of an angle; anterior margin with numerous slightly reflected ribs.

Breadth three and one-fifth inches; length more than one and a half inches.

This species was found by Professar Vanuxem in the north fork of the Holstein River, in company with *U. cariosus*, nobis, *Melania subglobosa*, nobis, and *Fusus fluvialis*, nobis.

In consequence of the ribbed appearance of the anterior margin of the shell, it has much similarity to an *Alasmodon*, but the lamelliform teeth are prominent and distinct.

Alasmodonta ambigua.—Shell transversely oblong-oval; somewhat inflated, rather thin, dusky, wrinkled; anterior and posterior margins almost equally rounded; hinge margin parallel with the base; basal margin a little compressed in the middle; beaks not prominent, approximate, their surface slightly undulated; a very obtuse, hardly elevated undulation extends from the beaks to the junction of the basal and anterior margins; hinge with very small, obsolete primary teeth; within somewhat iridescent; posterior and basal portion milk-white; hinge cavity brownish.

Breadth one and four-fifth inches; length four-fifths nearly.

This is one of the many fine shells which I obtained in the North-western territory, when travelling with Major Long's party. It forms a link between the genera *Alasmodonta* and *Anodonta*. When young the primary teeth are obvious, but when the shell arrives at the full growth the teeth are obsolete, and in some instances, not at all visible.

[J. A. N. S. vol. v. p. 207, et seqq., Feb. 1826.]

Delphinula ? laxa.—Whorls all separate.

Inhabits the coast of South Carolina.

Shell subovate, nearly glabrous, whitish, slightly tinged with dull yellowish; whorls rounded, perfectly disjoined throughout, rapidly attenuated to the apex; a dilated, rugous, shallow groove on the line of the umbilicus; aperture oval-orbicular, with an acute edge.

Greatest breadth about nine-tenths of an inch.

This very remarkable shell was sent to me for examination by Mr. Elliott, who has found but a single specimen; it must therefore be considered very rare.

On a first view I was inclined to refer it to the genus *Vermetus*, in consequence of the separated nature of its volutions, and the broken apex of the spire, but a more careful examination exhibited the broad rugous groove, analogous to that in the umbilicus of many shells, and seemed to show its more close alliance with the present genus.

Can this be a monstrosity of a *Natica*, as the *Cornu* of Born is said to be a malformation of *Helix aspersa*, Mull.?

TURRITELLA CONCAVA.—Shell subulate, white; volutions more than ten, concave in the middle, and sculptured with from two to four obsolete, impressed revolving lines, and with an apicial and and basal band of about fifteen longitudinal undulations on each volution; the basal band passes round the middle of the body whorl; suture very slightly impressed, interrupting the continuity of the undulations in the adjacent bands; canal rather prominent.

Length eleven-twentieths of an inch; greatest breadth less than one-quarter of the length.

For this species I am indebted to Mr. Stephen Elliott, of Charleston.

TURRITELLA ÆQUALIS.—Shell subulate, white; volutions ten, each with about twenty-two transverse, elevated, obtuse, equal lines, with interstitial grooves of the same diameter; suture distinct, impressed; aperture rounded at base, and destitute of any distinct emargination.

Length one-fifth of an inch.

SCALARIA MULTISTRIATA.—Shell tapering to an acute apex; white; whorls eight; costa regular, equidistant, moderately elevated; altogether wanting on the three terminal whorls; interstitial spaces with very numerous, approximate, impressed lines; aperture oval.

Length about one-half of an inch. Inhabits the Southern coast.

I obtained two specimens of this shell on the coast of East Florida, and I am indebted to Mr. Stephen Elliott for a much better specimen than either of them, from the coast of South Carolina. It is readily distinguished from the two other species which inhabit our shores, the *clathrus* of authors, and the *lineata*, nobis, by the numerous small indented lines that occur in the spaces between the costæ, and at right angles with them.

INFUNDIBULUM DEPRESSUM.—Shell depressed, fragile, with small concentric irregular wrinkles; volutions three; suture not profoundly indented: apex not central; base oval, almost orbicular; umbilicus oblong; internal plate small.

Greatest diameter of the base rather more than one-fifth of an inch.

This highly interesting shell was found by Mr. Stephen Elliott, on the coast of South Carolina. Amongst a number of curious shells, natives of New Holland, Timor, and the Isle of France, presented to the Academy by Mr. Lesueur, a species of this genus occurs, which is somewhat similar to ours, but it is much larger; its greatest basal diameter being three-fourths of an inch in length, its suture is more profoundly indented, and its surface wrinkled with much regularity.

NATICA TRISERIATA.—Shell longitudinally suboval, approaching subglobular; volutions five; body whorl with three revolving series of large oblique, parallel, oblong-quadrate, dark reddish-brown or blackish spots, about twelve in each series; umbilicus rounded, not contracted by the callus; suture not impreseed; spire with but one series of spots on each volution.

Length two-thirds; width eleven-twentieths of an inch. Inhabits the Northern coast. Boston harbor.

This shell may be compared to the *N. intricata* of Donovan, which is comprehended by Dillwyn amongst the varieties of *N. canrena*. It certainly appears to be closely allied to that very common species of the British coast in its configuration, excepting that it is perhaps somewhat more elongated, and that the shoulders of the whorls are much less convex, and the suture, consequently, less deeply impressed. In a very perfect specimen presented to the Academy by the Vice-President, Mr. Zaccheus Collins, the two lower series of spots are jointly included by a pale yellowish-brown band; beneath this band the base of the shell is pure white; the shell is also white above this band, excepting that the spots of the superior series are connected by a pale yellowish-brown color. This species like the *canrena*, seems subject to many varieties. On two specimens, for which I am indebted to Mr. Stone, the pale yellowish-brown color is covered by a cinereous tinge, and on one of them two lower series of spots towards the labrum are confluent at their inner extremities into one series; in another specimen the spots of each series are so confluent with each other on the back of the shell and towards the labrum as to represent three continuous bands.

I have not yet found this species so far South as Great Egg Harbor.

From the examination of some specimens of *Naticæ* from the same coast, presented by Mr. Collins, I am inclined to think that this species grows to a considerable size, and attains the length of two and three-fifths inches, that it then loses its spotted bands, but always retains the whiteness about the umbilicus, and this latter part as well as the callus, and indeed the whole outline of the shell, remains unaltered.

VOLVARIA CANALICULATA.—Shell whitish, immaculate, cylindric, with very minute obsolete wrinkles; spire convex, very little elevated, mammillated at tip; volutions about five, with their shoulder very obtusely grooved; labrum with the edge arcuated; labium overspread with a calcareous lamina, and with a single oblique fold or small tooth near the base.

Length from three-twentieths to nearly one-fifth of an inch.

I received specimens of this singular shell from Mr. Elliott, of South Carolina, who obtained it on the coast of that State. The arcuated form of the edge of the labrum is only perceived when the part is viewed in profile.

NASSA UNICINCTA.—Shell yellowish-white or cinereous, subovate-conical; whorls with numerous revolving lines and transverse undulations, the former about eleven or twelve in number, with often a smaller obsolete one in the intervening spaces; undulations about ten to the body whorl, placed at the distance of the length of their own diameter apart, and somewhat closer on the spire; whorls eight; apex acute; body whorl with a brown band, sometimes obsolete, interrupted by the undulations, and consisting of about two spots in each of the intervening spaces; labrum within with ten parallel striæ, which revolve on the inner surface of the shell; labium in the middle concave, with about two obsolete striæ, and a more profound one at base.

Length seventeen-twentieths; breadth nearly nine-twentieths of an inch.

In the collection of the Academy is a shell from the West Indies, to which our species is very closely allied; and although the striæ of the labrum are double in the former, yet it is probable that the two shells will be found to constitute one species, when more specimens are examined and carefully compared. In the systems it will probably arrange near to N. *vulgatum*.

For this shell I am indebted to Mr. Stephen Elliott, of Charleston.

Nassa alba.—Shell ovate, white, immaculate, longitudinally ribbed or undulated, and with spiral striæ; ribs equal, equidistant, symmetrical, from ten to eighteen on the body whorl; striæ equal, equidistant, filiform, elevated as distinctly upon the ribs as in their interstices, and from seventeen to twenty in number on the body whorl; whorls seven, convex; suture deeply indented; aperture suborbicular; labrum with a larger rib than the others on the exterior, and striate within; labium, plate distinct, entire, but not expanded, with an indented line near the base, and a prominent one near the junction with the labrum.

Length nine-twentieths; breadth three-tenths of an inch.

Inhabits the southern coast of East Florida, and the West India Islands.

I owe this beautifully sculptured shell to the politeness of Mr. Elliott. It seems to be more closely allied to N. *macula* of authors than to any other with which I am acquainted. It is, however, distinguished as a species by its more ventricose form, by its ribs being more rectilinear, and by the spiral striæ being more prominent and distinct. Those found on the coast of Florida are in no respect different from specimens brought from the West India Islands.

Nassa lunata.—Shell reddish-brown, with about six volutions; whorls with two revolving lines of dilated, sublunate, whitish spots, and sometimes a third one at base; suture not deeply impressed; labrum dentate on the inner submargin, the superior tooth more prominent; labium with the plate not thickened

Var. *a*. Shell white, with two revolving reddish-brown dilated lines.

Length three-twentieths of an inch. Inhabits the coast of the Southern States. Cabinet of the Academy and Philadelphia Museum.

Animal pale, whitish; foot linear, nearly as long as the shell, acute behind, hardly larger than the respiratory trunk, truncate before; trunk more than half as long as the shell, obtuse at tip, with a brown undulation near the tip, and another near the base; tentacula short, cylindrical, annulate with blackish on the middle; eyes black, placed on the base of the tentacula.

Found adhering under stones, fuci, &c., in the bays; numerous. It varies in color and in markings; the white sometimes predominates, and reduces the reddish-brown to one or two linear, transverse, undulated lines. A variety occurs on the coast of Maryland, which is white, with two or three reddish-brown, irregular-revolving lines.

FUSUS 10-COSTATUS.—Shell somewhat ventricose, very short, fusiform; the beak being much shorter than the spire; with six or seven volutions, which are each obliquely flattened above the shoulder, and spirally ribbed; these costæ are elevated, semicylindric, and, with the exception of the two superior ones, equidistant; sutural costæ remote from that of the shoulder; interstitial spaces with small lines parallel to the costæ; the latter are ten in number on the body whorl, three on the second whorl, three on the third, and obsolete on the fourth.

Length three and three-tenths inches. Greatest width one and nine-tenth inches. Length of the spire one and two-fifth inches.

This interesting species was presented to me by Mr. Zaccheus Collins, who obtained it from the coast near Boston. The summit of the spire, of two specimens before me, is partially removed, exhibiting in the interior a close arrangement of very numerous septæ, formed by the animal at different times, as it increased in size, and gradually abandoned the apex. It approaches very closely in character to the genus *Buccinum*.

FUSUS BICOLOR.—Shell short, fusiform; the beak subequal to the length of the spire; volutions five, convex, with abrupt, prominent, regular, equidistant undulations, which, on the body whorl, are thirteen or fourteen in number, extending from the suture about half the distance to the tip of the beak, and near the suture exhibiting a tendency to rise into arched scales; the whole surface of this shell is sculptured with small revolving grooves, to the number of from twenty-five to thirty on the body whorl; inferior moiety of the body whorl tinged with rufous; suture profoundly impressed; aperture gradually diminishing to the beak; striæ of the labrum within distinct, sometimes obsolete or wanting.

Length nine-twentieths; greatest breadth more than one-fourth of an inch. Inhabits the Southern coast of East Florida.

The aperture is not suddenly contracted at the origin of the beak channel, as in many species, but is gradually diminished in width, much like Montfort's figure of *Latirus filosus*.

For this shell I am indebted to Mr. Elliott.

PATELLA ALTERNATA.—Shell conical, with upwards of thirty obsolete, hardly raised, unequal ribs; apex obliquely curved, the tip pointing nearly in a parallel direction with the surface of the shell, and acute; color brown, radiated with white; base oval.

Basal length three-tenths of an inch. Inhabits the Southern coast of East Florida.

Communicated by Mr. Elliott. It seems to approach the *leucopleura*, as described by authors, excepting that the base is not ovate, as the base of that shell is said to be.

CALYPTRÆA STRIATA.—Shell oval, prominently convex, with numerous, slightly elevated, equal, equidistant radiating lines; summit glabrous, wax-yellow, subacute, inclining towards the left side and the posterior end; inner valve patelliform, dilated, attached by one side to the shorter side of the shell; acutely angulated at the anterior line of junction, and rounded behind, and rapidly attenuated to an acute tip, which nearly corresponds with the inner apex of the shell.

Length less than nine-tenths of an inch.

This species belongs to my indicated genus *Dispotæa*. I am indebted for it to Mr. John S. Phillips, who obtained two specimens on the coast of New Jersey, about three miles north of Long Branch.

VENERICARDIA TRIDENTATA.—Shell suborbicular, subequilateral, thick and ponderous, with about eighteen convex, longitudinal ribs, cancellate by concentric, elevated lines, which do not penetrate into the interstititial narrow spaces, and which are obsolete on the umbo, and on the anterior side; inner margin deeply crenate; hinge with two diverging teeth, separated by a large cavity on one valve, and on the other a single large, triangular, prominent, recurved tooth, closing into the cavity.

Length one-fourth of an inch, breadth rather more.

This curious shell was discovered by Mr. Stephen Elliott, on the coast of South Carolina. Its characters do not at all correspond with those of *Venericardia,* as defined by Lamarck in his last work, the Animaux sans Vertèbres, where he attributes to the genus "two oblique, cardinal teeth directed to the same side." In the Ann. du Mus., vol. 7, page 55, he admits, however, that "in certain species, which ought, perhaps, to be separated from the *Venericardes,* there is on one valve but a single cardinal tooth, and upon the opposite valve two divergent cardinal teeth." These characters, I conceive, correspond with the shell above described; and although, should they be tolerated, an artificial assemblage will be the result, yet, for the present, I refer this shell to the genus *Venericardia,* under this authority of Lamarck.

This species will be regarded as an interesting addition to the Fauna of the present world. The first recent species was described by Lamarck as a native of New Holland. All other known species are found only in the fossil state.

TELLINA INTASTRIATA.—Shell subovate, angulated at the anterior base, transversely wrinkled, and within slightly striated longitudinally.

Coast of East Florida.

Shell white, immaculate, ventricose; wrinkles distinct, and with obsolete, longitudinal striæ; posterior slope near the hinge parallel to the base; posterior end obtusely rounded; anterior hinge slope rectilinear, oblique; anterior end rounded; fold rather profound, extending from the beak to the junction of the base, with the anterior end; base viewed from the disk of the right valve subrectilinear, but very much arcuated with the concavity of the shell; hinge teeth small, lateral teeth none; within longitudinally obsoletely striated; beak rather before the central.

Length one and three-fifths inch, nearly; breadth two and one-tenth inches, nearly.

This shell was handed me for examination by Professor Green, in whose cabinet the specimen is preserved; a right valve is in the collection of Mr. Hyde; in general outline it resembles fig. 3, pl. 287, of Encycl. Meth.

TELLINA LATERALIS.—Shell transversely subovate; beak nearly central; posterior margin regularly rounded; anterior margin rostrated, the rostrum turned to the left, and slightly gaping; ligament slope rectilinear; basal margin regularly arcuated, a little contracted near the rostrum; valves whitish, often tinged with ferruginous, with small concentric wrinkles and slight waves; within white, a little sculptured with the external waves; lateral teeth none; cardinal teeth two on one valve, and one with another hardly elevated filiform one on the other.

Inhabits the coast of the United States. Length one and eleven-twentieths inch; width two and three-twentieths inches.

This species is more commonly found upon the Southern coast, where it is abundant, but perfect specimens are very rare.

TELLINA DECORA.—Shell transversely subovate, rosaceous, or white, with rosaceous radii; not much compressed; numerous, minute, concentric wrinkles, and regular, oblique, equidistant lines crossing them; anterior margin destitute of the oblique lines; posterior lateral tooth of the left valve prominent, the others obsolete; apex a little before the middle.

Length more than one-half of an inch; breadth seventeen-twentieths of an inch.

The largest specimen, brought by Mr. T. Peale from the Southern coast of East Florida, is one inch in breadth.

In the character of the oblique striæ this species is allied to *T. iris*, nobis, but it is amply distinguished by its much greater size, less compressed form, oblique striæ, by its color, &c.

PSAMMOBIA FUSCA.—Shell compressed, transversely subovate, thin and fragile; wrinkled concentrically, and covered with a fuscous or yellowish-brown epidermis; apex not prominent, central; anterior margin more narrowed than the posterior one, with a slight and obtuse wave passing along the anterior submargin; posterior margin very obtusely rounded; within white; teeth diverging remotely, very slender, filiform, and hardly elevated.

Var. *a*. Epidermis whitish, slightly tinged with yellowish.

Length one and one-twentieth inches; breadth one and seven-twentieths inches. Inhabits the estuaries of Georgia. Cabinet of the Academy and Philadelphia Museum.

Several specimens of dead shells were brought up from the bottom of the Sound, near Jeykill island, by the fluke of our anchor.

AMPHIDESMA RADIATA.—Shell transversely oval, orbicular, a little compressed; apex nearly central, a little prominent; posterior slope somewhat concave near the beak; anterior slope rectilinear to the middle; disk somewhat regularly wrinkled transversely, and with minute longitudinal striæ, white, with more or less rosaceous radii, which are sometimes obsolete; anterior submargin, with a slight very obtuse undulation; cardinal teeth two in each valve, elevated, slender, unequal; lateral teeth very distinct; the posterior one nearer the primary teeth, and shorter than the anterior one; interior ligament cavity profound, fusiform, nearly parallel to the anterior slope; within tinged with yellow, and the rosaceous radii are distinct.

Length nine-tenths inch; breadth rather more than one inch.

Many specimens of this pretty species were brought from the Southern shores of East Florida, by Mr. Titian Peale, and I obtained a worn individual a few years since, on the coast of Georgia, measuring one inch and two fifths in breadth.

It resembles the species I formerly described under the name of *A. orbiculata*, but it is wider in proportion to the length, &c.

AMPHIDESMA LEPIDA.—Shell very much compressed, subtriangular, remarkably thin, pellucid, equilateral, somewhat iridescent, with numerous concentric wrinkles, and equally numerous very minute regular, longitudinal striæ, which, on the anterior margin, curve towards the anterior edge, and on the posterior margin curve in the same manner towards the posterior edge; cardinal teeth obsolete; lateral teeth prominent.

Length rather more than one-fourth of an inch; breadth less than one-fourth of an inch.

This shell was sent to me by Mr. Elliott, who found it on the coast of South Carolina.

[No. 4. Long's Expedition, &c. vol. ii. p. 261, et seqq. 1824.]

Planorbis deflectus.—Shell dextral, depressed; whorls nearly five, minutely and regularly wrinkled across, wider than long, with a much depressed rotundity above, descending to an acute lateral edge below the middle; spire not impressed; suture indented, but not profoundly; beneath a little concave in the middle, exhibiting one-half of each volution to the apex; whorls flattened, slightly rounded; aperture declining very much, sub-oval, the superior portion of the labrum considerably surpassing the inferior portion, and taking its origin a little above the carina; inferior portion of the labrum terminating on the middle of the inferior surface of the penultimate whorl.

Greatest breadth two-fifths of an inch.

This shell was presented to me by Dr. Bigsby, who collected many specimens in the waters of the North-west Territory.

It resembles the *exacuous*, nob., but the aperture does not embrace so large a proportion of the preceding volution, and the volutions on the inferior portions of the shell are consequently more obvious, and the umbilicus is but slightly indented; the upper portion of the labrum does not extend so far beyond the lower portion, the aperture declines much more, and the carina is less acute. It has also an affinity for the *carinatus* of Europe, but in addition to other differences, the aperture of that species declines but little, if at all, and the carina is an elevated revolving line. The aperture embraces the penultimate volution about as much as in the *rotundatus* of Europe, to which our shell is also allied, but differs in its declining aperture, and the less degree of rotundity of its whorls on their upper surface. Pl. 15, fig. 8.*

Planorbis corpulentus.—Shell dextral; whorls more than three, rather rugged with coarse wrinkles, much higher than wide; superior surface much flattened, and edged by an abrupt acute line, which is distinct to the aperture; sides hardly rounded, and terminating below by another abrupt edge, which is not quite so definite and acute as the superior one; spire slightly concave; umbilicus exhibiting a portion of each of the rapidly retiring whorls to the apex; aperture longer than wide, the superior part extending higher than the preceding volution, and the inferior portion declining much lower than the inferior line of the same volution.

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* [Plate 74 of this reprint.—Ed.]

Greatest breadth three-fourths of an inch. Length of the aperture nearly half an inch. Length of the penultimate whorl near the aperture rather more than three-tenths of an inch. Inhabits Winnepeek river, Winnepeek lake, Lake of the Woods, and Rainy lake; common. Pl. 15, fig. 9.*

Of this species I collected numerous specimens, but had the misfortune to lose them all, as well as a great number of interesting terrestrial and fluviatile shells, on our return to the settlements, and I am indebted to the liberality of Dr. Bigsby for the individual above described. It is closely allied to *trivolvis*, nobis, but is much less rounded on the sides of the whorls, the carinæ are more prominent, the upper side is much more horizontally flattened, the labrum is less rounded, and the whole shell is larger and higher in proportion to its width, and the aperture extends both above and below the penultimate whorl.

PLANORBIS CAMPANULATUS, nob. Falls of Niagara.

PLANORBIS TRIVOLVIS, nob. North-west Territory and Falls of Niagara.

PLANORBIS PARVUS, nob., is common in the waters of the North-west Territory, and may be found in plenty crawling upon the rocks near the shores. They vary in size from those found in the Eastern States, being less than half as large.

PLANORBIS ARMIGERUS, nob. St. Peter and Red rivers, common.

PLANORBIS BICARINATUS, nob. North-west Territory, rather common.

LYMNEUS MEGASOMUS.—Large, dilated suboval; spire short, rapidly diminishing, acute; whorls about five, rounded, obtusely wrinkled across; body-whorl large, the wrinkles very obvious; suture deeply impressed; aperture subovate, much longer than the spire, within chesnut-brown; collumella white.

Length more than one and six-tenths of an inch. Length of the aperture more than one inch. Greatest diameter one inch.

This remarkably large and fine species was found in Bois Blanc Lake, North-west Territory, by Dr. Bigsby, to whom I am indebted for specimens. The color is brownish, sometimes lineated across the body whorl with dull greenish and pale ochraceous; and the chesnut-brown color of the interior of the shell, combined with its large dimensions, distinguish this species from all others yet discovered in this country. Pl. 15, fig. 10.*

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* [Plate 74 of this reprint.—ED.]

LYMNEUS EMARGINATUS, nob., from Lake Namakan, north of Lake Superior; collected by Dr. Bigsby.

LYMNEUS ELONGATUS, nob. Rainy Lake and Seine river, Dr. Bigsby.

LYMNEUS DESIDIOSUS, nob. Falls of Niagara.

PHYSA HETEROSTROPHA, nob. North-west Territory.

VALVATA SINCERA.—Shell subglobose-conic; whorls nearly four, accurately rounded, finely and regularly wrinkled across; aperture not interrupted by the penultimate whorl nor appressed to it, but merely in contact with it, the labrum not diminished in thickness at the point of contact; umbilicus large, exhibiting the volutions.

Breadth less than one-fifth of an inch. Inhabits North-west Territory.

For this species I am indebted to Dr. Bigsby. It is very similar to the *tricarinata*, nobis, but is destitute of carinated lines, and the umbilicus is rather larger; it differs from the *obtusa* of Europe, also, in the much greater magnitude of the umbilicus. Pl. 15, fig. 11.*

PALUDINA LIMOSA, nob. North-west Territory.

AMPULARIA DEPRESSA.—Shell ventricose, subglobular, obsoletely banded with obscure green; whorls four, slightly wrinkled; body whorl more prominent above, somewhat flattened towards the suture, of a pale olivaceous color, which is almost concealed by numerous, unequal, longitudinal and transverse greenish and brownish lines; spire very much depressed; aperture suboval, within somewhat glaucous, on the margin exhibiting the bands distinctly; labrum simple, as much rounded above as below; umbilicus small, nearly closed.

Greatest width one inch and nine-twentieths. Total length one inch and a half. Length of the aperture one and one fifth of an inch nearly. Inhabits East Florida.

During an excursion to East Florida, in company with Messrs. Maclure, Ord and T. Peale, I obtained a single dead and imperfect specimen of this interesting shell. It occurred in a small creek, tributary to St. John's river, and on the plantation of Mr. Fatio. Captain Le Conte of the Topographical Engineers, has since presented me with a perfect specimen, with the information that he observed them in very great numbers on the shores of Lake George, a dilatation of St. John's river; that in some places the dead shells were piled up confusedly to a considerable height, and that the *Numenius longirostra* feeds upon the living animal. The spire is still less elevated than that of the *globosa* of Swainson. Pl. 14, fig. 2.*

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* [Plate 74 of this reprint.—ED.]

MELANIA VIRGINICA, nob. Falls of Niagara.

ANODONTA GIBBOSA.—Shell thin and very fragile; much inflated; anterior and hinge-margins compressed, the former alated; surface pale yellowish testaceous, finely radiate with green, and having somewhat regular concentric minute undulations; within somewhat iridescent.

Length about one and nine-tenths, breadth two and nine-tenths of an inch.

This shell exhibits a remarkable appearance, in the unusually great convexity of the disks and umbones. It is strikingly distinct, and was presented to me by Captain Le Conte of the Topographical Engineers, who informs me that it is an inhabitant of South Carolina. Pl. 14, fig. 3, 4.*

[No. 5. New Harmony Disseminator.]

[*The greater portion of the descriptions published in this work were included in Mrs. Say's "Descriptions," &c. These are copied from her reprint; the original date and page of each species is not given here, but may readily be found in the Index. Those descriptions which Mrs. Say did not reprint, on account of their having been repeated by Mr. Say in the "American Conchology," will be found under that head. This arrangement was necessary to prevent the necessity of transcribing the descriptions to MSS. The species thus omitted by me are specified in the following list.*—ED.]

For the following species see American Conchology.

UNIO DEHISCENS, UNIO PERSONATUS,
" RIDIBUNDUS, " APICULATUS,
ALASMODONTA CONFRAGOSA.

UNIO CICATRICOSUS.—Shell transversely subovate: posterior margin very short, hardly extending beyond the beaks, regularly rounded: anterior margin rounded, or very obtusely angulated: umbo elevated: fosset behind the beaks, moderate, wider than long, not angulated behind: disk deeply wrinkled or undulated with a series of transverse elevations, sometimes separated by small longitudinal lines, so as to resemble, as it were, drops of a liquid, extending from the umbo to the base: within white: teeth direct.

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* [Plate 73 of this reprint.—ED.]

Length, about two inches and nine-tenths; breadth, three inches and seven-tenths. Convexity, nearly two inches. Inhabits Wabash.

A common species, distinguishable by the single series of transverse elevations on the middle. The allied species are *U. cardice* and *incurvis*, nob.*; but besides other characters, it may be distinguished from either by the less prominent nates, the smaller fosset, and the series of the disc. Amongst the numerous species sent to me by Mr. Barnes, previously to the publication of his paper, was a small valve of this species, but it was then referred as a variety to the convenient but obsolete receptacle of this genus, *U. crassus*.

UNIO VELUM.—Transversely elongate suboval, compressed, very fragile and thin, olivaceous, radiated with green; umbo not prominent, placed far backward; base subrectilinear; anterior margin more widely rounded in the posterior margin, with prominent membrane, crenate at its tip; within margined with opake white; primary teeth, a conic one in the left valve, with a recipient sinus in the right valve; lateral teeth simple and single in each valve.

Length, more than half an inch; breadth, less than one inch and one-fifth. Inhabits the Kentucky River.

This pretty species is remarkable in having the epidermis extended into a broad, crenate membrane, terminating the anterior margin. In the form of the teeth and the white interior margin this shell resembles the *U. monodonta*; and, in fact, I was led from these characters to suppose it the young of that shell, but afterwards finding the young, and perceiving that the umbo was not so far backward as in the present shell, and the remarkable membrane, induced me to describe it as new. It occurred on the rocky shore of the river, and appears to be rare.

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* I think these two species have long since been published under the names of *cordata* and *intorta*. I therefore suppress the descriptions here. I may remark, further, that the descriptions of *Unio* here given were chiefly made about three years since, together with nearly twenty others, which I suppressed, as the species were either anticipated or subsequently made known in the works of recent naturalists.

UNIO PURPURIATUS.—Transversely oval, slightly oblong, in some specimens with a little tendency towards ovate; dirty yellowish or fuscous, obscurely radiate with blackish-green: beaks, behind the middle, hardly raised: anterior edge rounded, or rather composed of two nearly rectilinear lines: posterior margin rounded: hinge margin regularly rounded: cavity of the hinge membranes (behind the beaks) narrow, but very obvious: basal margin arquated, a little compressed in the middle, and sometimes almost contracted in that part: within, purple; margin livid; anterior submargin iridescent: primary teeth nearly direct, rather thick, striated; lateral teeth hardly extending beyond the sinus of the hinge margin.

Length, one inch and three-fifths; breadth, three inches and one-tenth. Convexity, over nine-tenths of an inch. Var. *a.* Within white: Var. *b.* Within dull yellowish. Inhabits Mexico.

For this species I am indebted to Mr. Maclure. It was found by William Bennet in a stream a few leagues from Vera Cruz, where it is abundant. It resembles *U. purpureus*, nob., but differs in having the teeth more direct; in the lateral teeth being shorter, with respect to the sinus of the hinge margin; in having the greatest breadth at the middle of the anterior margin, &c.

In the young and middle-aged specimens the radii are very distinct, but are obsolete in old specimens. The umbones are widely decorticated in age, but seldom are they so deeply eroded as to disclose the waxen colored stratum.

It may be considered as the Mexican analogue of the *purpureus.*

UNIO METALLICUS.—Transversely ovate, very slightly oblong: dull yellowish, tinged with coppery, particularly on the umbones: beaks slightly elevated, not decorticated, undulated; the undulations obsolete in their middles, and not extending on the umbo placed far back: hinge margin prominently arquated: posterior margin very short, rounded: anterior margin rounded: basal margin subrectilinear: within liver color: iridescent on the anterior margin: cardinal teeth rather long, somewhat tuberculous, not very prominent; that of the right valve not abruptly terminated before, but gradually diminishing (as that of some *Alasmodontas;*) lateral teeth rather slender.

Length (at the anterior tip of the lateral teeth) one inch and one-fifth; breadth, nearly two inches and one-fifth. Convexity, four-fifths of an inch. Inhabits Mexico.

This shell is remarkable for the coppery tint, which is more obvious on the umbones. It was obtained in Lake Chalco? and was presented to me by Mr. Maclure. In the young state it is radiate with green before, and the adult has a very thick granular deposite of carbonate of lime on the anterior half of the shell, which is in the water and above the mud. The species appears to be abundant.

UNIO SUBROSTRATUS.—Transversely elongated, subrostrated, radiated.

Inhabits Wabash.

Transversely elongate subovate, brownish or pale ochreous, with numerous dark green radii: beaks but little elevated with a few, small angular, concentric lines: ligament margin a little compressed: anterior margin somewhat elongated, hardly subrostrated: separated by an obtuse angle from the ligament margin: base arquated: posterior margin rounded: within white, often slightly tinted with flesh color; somewhat iridescent on the margins, particularly the anterior margin: substance of the shell not thick: teeth very oblique, crested.

Length, one inch and two-fifths; breadth, three inches and one-fifth. Convexity, hardly over one inch.

This may be said to be the analogue of the *U. nasutus*, nob., of the Western waters. The rostrum, however, is not so definite, and it is a more convex shell. The aged shell is dark brown, but near the beaks reddish brown.

NOTE.—A short time since, I began a review of the American species of *Unio* hitherto described by naturalists, in which it appeared to me that much yet remains to be done, notwithstanding the laudable attempts that have already been made to rectify the synonyma: but on advancing somewhat in the undertaking, I found myself so much at a loss for books and other means of reference in my insulated residence, that I was compelled for the present to relinquish it. The following notice, however, I have concluded to publish, because it relates to the most common species in our eastern waters.

UNIO PURPUREUS, nob.—The propriety of retaining this name has recently been much questioned by two of our conchologists, but as I do not think that, as yet, its stability is in any degree problematical, I shall endeavor to show on what my opinion is founded. Prof. Green remarks, "I have no doubt that the species known commonly by the name of *Unio purpureus*, is the same with the *Mytilus fluviatilis* figured by Lister, t. 157, fig. 22, and described by Dillwyn, from Gmelin, under that name. I have, therefore, been obliged by the rules of nomenclature, now so strictly observed in Natural History, to restore the original specific name of Gmelin to this interesting shell, so well known by the name of *purpureus*." (Contrib. of the Macl. Lyc. Vol 1. No. 2.)

I cannot discover any specific similarity of the *purpureus* to this very doubtful figure, except that Lister describes it as "*subruber ex interna parte;*" certainly the shape of the figure is more like the *cariosus* or *ovatus*, nob., than the *purpureus*, and this assimilation is rendered more like, when we take into consideration the depressed anterior margin of the shell that appears associated with it on the same page, the *Potamophila subviridis*, Gmel. But it is all mere conjecture, for even the genus of the figure cannot now be determined, though it is probably an *Anodonta*, and as the description of the *fluviatilis* was made out by Gmelin entirely from that figure, I should consider it as worthless, as such a latitude in describing is reprehensible.

It is nevertheless evident that, from the situation Dillwyn assigns to the *fluviatilis*, he considered it an *Anodonta*, for, according to my MSS. notes, wherein the subject of the *Nayades* was at first discussed, he *places fluviatilis next to cygneus, and it is followed by stagnalis and anatinus and fucatus, all Anodontas.* Hence, if all this be correct, the *rectus*, *triangularis* or *æsopus* are more nearly related to *purpureus* than the *fluviatilis* can be; if indeed, such a species as the latter exists in nature.

Mr. Lea observes, "Dillwyn describes this shell, under the name of *Mya complanata*, and refers to this figure." (Lister, t. 150, f. 5.) "Dr. Green supposed this shell, so well known to all our conchologists under Mr. Say's name *purpureus*, to be the *Mytilus fluviatilis*, described by Dillwyn from Gmelin, and referred to Lister, t. 157, f. 12. I differ, however, in this opinion: 1. Because it is not described as being toothed. 2. Gmelin says, "habitat in Europæ aquis dulcibus.' 3. The *complanata* answering, in description, better to our shell, and being the first figured and described. It appears somewhat singular to me, that the observant and able zoologist, Mr. Say, had not been struck with the similitude of our shell to Lister's figure and description. There is no species more common in all our fresh waters, east of the Alleghany Mountains, than this; and nothing could be more likely than that it should be among the first to be taken to Europe by the early voyagers to America. In accordance, therefore, with the rules of nomenclature, I have inserted the name of *complanatus* to the shell described by Mr. Say under the name of *purpureus*."—(Trans. Philos. Sc. Vol. 3, N. S.)

I have not, at present, the means of referring to Dillwyn's work, and I can therefore only speak in relation to Lister's figures, t. 150, above mentioned, and consequently, to any description founded on these figures. On reading the above, I was myself struck with the singularity of the fact, that I should have overlooked the similitude, if any, between the shell and a figure with which I was equally well acquainted. But on a re-examination of the figure, I am in my turn surprised that any one should have thought of bringing the *purpureus* into comparison with it. How the figure can appear so differently to different conchologists, I know not; but certain it is that Gmelin quoted it, with a saving mark of doubt, for ***Mytilus* *cygneus* ! !** I quoted it in the year 1819 for *Unio crassus*, Barnes also quoted it for the *U. crassus*, and now it is supposed to represent the shell in question.

After a careful comparison of the shell with that figure, I cannot, with any moderate concession of character, make it correspond; and, moreover, I cannot think that any one will be more successful in this respect than I have been. But even if a strong likeness really existed, two words of Lister's description, quoted by Mr. Lea himself, puts the matter altogether beyond a doubt. The words, "*admodum crassus*," engraved on the same plate with the figures, admit of no misconstruction, and no approximation of the *purpureus*, (which Mr. Lea says, p. 33, note, "is never ponderous,") but agree very well with a variety of the unfortunate *U. crassus*; for which I originally quoted the figures, and which is "*admodum crassus*." For these reasons, I think that cause has not yet been shown why the name should be changed; and, therefore, agreeably to any rules of modern nomenclature, the name *purpureus* seems fated to withstand all attacks, unless, indeed, it can be proved, from Mr. Dillwyn's description itself, that he meant this shell, when he described his *complanatus*, and not that of the figure to which he refers.

ALASMODONTA SCULPTILIS.—Shell transversely suboval, with green radiations: umbo and summit with six or seven rather sharp undulations, which are transverse, rectilinear, at the extremities abruptly arquated or reflected: dorsal and anterior margin from the summits with numerous, slender, slightly elevated lines bending in different directions.

This is evidently a young shell, but we know nothing of the adult. The teeth are more like those of the *undulata*, nob., than any other species, but the form and sculptured anterior margin amply distinguish it.

It was brought from Virginia by Mr. I. Lukens, and by him presented to me.

ALASMODONTA EDENTULA.—Shell transversely oblong-oval, somewhat compressed, dark olivaceous or brownish, obsoletely radiated (in the young:) nates behind the middle, but remote from the posterior edge, but little prominent, undulated: anterior margin not remarkably compressed, and not radiated: within white, margined with opake white more or less distinct, but sometimes obsolete: teeth obsolete, but the peculiar curvature beneath the beaks shows their locality.

Length, one inch and seven-tenths; breadth, three inches. Convexity, one inch. Inhabits Wabash river.

Approaches nearest to *A. marginata*, nob.; but the want of teeth, and the simple anterior margin, at once distinguish it.

CYCLAS EDENTULA.—Shell transversely oval, inæquilateral, with somewhat elevated and regular transverse lines: beak not elevated above the general surface; cardinal tooth very small, lineolar, oblique and not elevated higher than the edge of the hinge margin: color brown: umbones decorticated.

Length, seven-twentieths of an inch. Breadth, two-fifths of an inch. Inhabits Canandaigua Lake.

This is distinguishable by the diminutive teeth, which are not visible in a profile view of the hinge.

CYCLAS TRANSVERSA.—Transversely oblong subovate, subinæquilateral: anterior margin decidedly more widely rounded than the posterior margin: beak obviously elevated above the general curvature: cardinal teeth double, distinct.

Length, over one-fourth of an inch; breadth, nine-twentieths of an inch. Inhabits Kentucky.

This shell is more transverse than even the *similis*, nob.

CYCLAS TRIANGULARIUS.—Transversely oval, subtriangular, subequilateral: disk with transverse, rather raised lines: beak somewhat prominent; elevated much beyond the general curvature: teeth, viewed in profile, distinct and elevated.

Length, two-fifths of an inch; breadth, half an inch. Inhabits Mexico.

The apex of this species is not so acutely elevated as that of the *calyculata*, Drap., but the shell is more drawn up to an angle in that part.

ANODONTA IMPLICATA.—Transversely oblong-oval, subcylindric, yellowish olive: disk convex, the wrinkles not very prominent; umbonial slope hardly presenting a very obtuse angle or curve: beak but little elevated, obsoletely undulated: hinge margin nearly parallel to the base, diverging a little from it anteriorly, and terminating in a slight, obtuse angle: within deeply concave.

Length, one inch and a half; breadth, three inches and a fifth; convexity, one inch and three-twentieths. Inhabits a pond in Danvers, Massachusetts.

For this species, I am indebted to Dr. Harris, of Milton. It is more cylindrically convex than any I have met with.

As respects the proportions of length and breadth, it resembles, *A. elongatus*, Swains.; but the umbones are less elevated and not placed so far back as in that species. It is also a thinner shell, and the dorsal view is altogether different, exhibiting a regular curvature.

ANODONTA LUGUBRIS.—Transversely oblong-oval, subovate, blackish-brown: disk convex, acutely wrinkled: umbonial slope, with a distinct elevation or line: beak, slightly elevated, with two or three sinuous undulations: within, white: margin, particularly before, livid: hinge margin somewhat parallel to the base, at the sinus rather nearer the base than at the beak, or as near.

Length, two and a half inches; breadth, four inches and seven-tenths. Convexity, one inch and four-fifths. Inhabits Cumberland River.

For this specimen I am indebted to Mr. Lesueur. I cannot make it agree with the *A. pupuracens*, Swains., though it bears some resemblance to that species. It is, however, a more convex shell, the beak not so far back, and much more obtusely rounded before. The few specimens in the cabinet of my friend Lesueur are not tinged with purle within.

It has some resemblance to Lister's fig. 9, of pl. 154, which Dillwyn calls *fucatus*, but the present is a longer shell, with somewhat more elevated beaks, more rounded at the base, &c.

ANODONTA GRANDIS.—Shell very large, subovate; disk unequally wrinkled and undulated transversely, dark yellowish brown; umbo elevated; beak slightly elevated, with, generally, two or three small sinuous, acute undulations; hinge margin slightly arquated, sometimes nearly rectilinear, somewhat angulated at its anterior termination, thence the edge descends by a nearly rectilinear, or slightly concave line to the anterior margin, which is considerably narrowed; sinus of the hinge margin, concave; posterior margin widely rounded; within white margined, particularly before, with dusky.

Length, nearly five inches; breadth over seven and a half inches. Convexity, three and a quarter inches. Inhabits Fox River of the Wabash.

The great size of this species, distinguishes it from any other I have met with. A favorable specimen, at first view, corresponds with the figures on pl. 205 of the Encycl. Meth., named by Lamarck, A. *trapezialis*, but the different character is, in the words of Lamarck, "La sinus de la lame cardinale est grande, et form un angle rentrant, aigu." He described from a specimen in his own collection, and as the figures exhibit this character, there can be no doubt that our shell is a distinct species.

The finest specimen I have seen was presented to me by Mr. Oliver Evans, who obtained it in Fox River, which is a serpentine arm of the Wabash.

ANODONTA IMPURA.—Subovate, fragile, a little compressed, dull yellowish brown; umbo much eroded, exhibiting a chalky white stratum, then a dull wax yellow surface; beak a little undulated, hardly elevated above the general curvature; hinge margin forming a large angle with the base, being anteriorly elevated into an obtuse angle, whence the edge descends almost rectilinearly to the anterior margin, which is equally rounded with the posterior margin.

Length one inch and three-tenths; breadth less than two inches. Convexity less than seven-tenths. Inhabits Mexico.

I obtained several specimens in a ditch beside the road between the Capitol and Tacubya. It is perfectly distinct from any species of this country that I have seen. It cannot be the *A. glauca*, Lam., as that shell is represented to have "*Natibus prominulis.*"

ANODONTA IMBECILIS.—Transversely oblong subovate, very thin and fragile; disks convex, green, with darker green obsolete rays, and three obvious rays on and above the umbonial slope; hinge margin rectilinear, terminating before in an angle; beaks a little undulated and not elevated above the general curvature; from the anterior tip of the hinge margin the slope is rectilinear to the anterior margin; within bluish white, iridescent before; hinge perfectly rectilinear; posterior margin rounded.

Length, over one inch. Breadth, over two inches. Convexity, three-fifths of an inch. Inhabits Wabash River.

By these dimensions, it is evident that the present species is proportionally broader than any other of our *Anodontæ* of the same length. It does not appear to be common in this river, or it may have been overlooked or rejected as a young *Unio* by our collectors, without examination. On this account, perhaps, I have only two specimens, of which the smaller is less than half the size of the present. It may be a young shell, but if so, in the adult state it must be much elongated, inasmuch as its proportions are now nearly those of the full grown *cygnea*, Linn. It cannot be the *elongata*, Swainson, as the shape differs, and that is a thick shell with prominent umbones.

MELANIA PLURISTRIATA.—Turreted; with numerous transverse, elevated lines.

Inhabits Mexico.

Shell oblong-conic, tapering, more or less tinged with rufous; whirls eight or ten, without much convexity, with elevated, numerous revolving lines, about fifteen on the body whirl and five on those of the spire; suture of the spire impressed, often indistinct; of the body whirl very deeply indented; apex with a small truncation; labrum near the base not remarkably produced; base without any rudiment of a sinus; body whirl slightly ventricose.

Length, one inch and one-fourth. Greatest breadth, eleven-twentieths.

It was sent to me from Mexico by Mr. Wm. Maclure. It may be distinguished from *multilineata*, Say, by its superior magnitude, greater elevation of the striæ, less prominence of the labrum near the base, &c.

MELANIA NUPERA.—Oblong-oval; volutions five, slightly rounded; body whirl with about three revolving series of subequal, equidistant, subacute granules or tubercles not higher than wide, occupying the superior half of the surface; second volution with but two series, remaining volutions with slightly elevated, longitudinal lines, instead of tubercles; but these are often obsolete; spire towards the tip decorticated; suture not deeply impressed; aperture longer than the spire; sinus of the superior angle profound; labrum concave, with a callus near the superior angle; columella with a slight, obtuse, hardly prominent angle above the sinus, which is obvious; labrum not abbreviated above, nor much produced near the base.

Length, four-fifths; breadth, less than half an inch. Inhabits the Wabash River. Var. *a*. Body whirl with but one series of of tubercles. Var. *b*. Body whirl with four or more series of tubercles.

This species is common in the Wabash River. The spire is almost invariably so completely decorticated towards the apex, that no trace of the longitudinal lines remains; in the young only are these lines distinct, and even in these they are frequently wanting.

MELANIA CANCELLATA.—Shell rather slender, attenuated; volutions convex, with about twenty-six reclivate, longitudinal, elevated lines, crossed by about eighteen revolving ones, the eight or nine towards the base crowded.

Length, more than four-fifths of an inch. Inhabits Florida.

For this shell I am indebted to Capt. Leconte, who informed me that he obtained it in St. John's River. It differs from all our species in the numerous longitudinal and transverse elevated lines, with the exception of the *catenaria*, nob., than which it is of a much more elongated and attenuated form.

MELANIA SEMICARINATA.—Shell small, rather slender; spire attenuated, acute; the four apicial volutions carinate below; volutions about eight, somewhat convex; suture moderately impressed; surface, especially of the body whirl, slightly wrinkled; within slightly tinted with reddish brown.

Length, less than half an inch. Inhabits Kentucky.

Occurred in great numbers in a small stream. It may be distinguished from our other species by its small size, combined with the existence of a carinated line only in its young state having increased to four volutions, the carina is no longer formed.

MELANIA UNDULATA.—Shell large, elevated, conic, brownish, with a broad; equally impressed band; inferior boundary of the band elevated and deeply crenate; superior boundary elevated and sometimes nodulous: volutions at least eight, not convex: suture not impressed, hardly obvious, undulated by revolving on the inferior crenate boundary of the impressed band: labrum, near the base, much protruded: sinus very obtuse.

Length, one inch and four-tenths. Inhabits the Ohio.

I observed this large species to be abundant in Kentucky River, when travelling in that State two years since with Mr. Maclure.

It seems to approach nearest in character to the *canaliculata*, nob., but its rough appearance will distinguish it, even at first sight.

MELANIA STYGIA.—Shell robust, ovate conic, black: spire rather longer than the aperture, eroded at tip; volutions five, hardly convex: wrinkles obsolete, excepting a few larger ones: suture not profoundly indented: aperture narrowed at base into a slight sinus and subangulated; much widest in the middle: labrum much arquated in the middle.

Length, three-fourths; greatest breadth, less than half an inch.

A specimen of this shell was given to me by Mr. Lesueur; several were found in Cumberland River, by Dr. Troost. In form it resembles *armifera*, nob., more than any other species, but that shell is armed with tubercles and ornamented by colored lines; its suture also is only a simple impressed line.

MELANIA LAQUEATA.—Shell oblong: spire longer than the aperture, elevated, conic, acute: volutions moderately convex, with about seventeen regular, elevated, equal, equidistant costæ on the superior half of each volution extending from suture to suture, and but little lower, and becoming obsolete on the body whirl: suture moderately impressed: sinus obsolete.

Length, four-fifths of an inch.

This species was found by Dr. Troost in Cumberland River. Aside from a difference in form, it may be distinguished from *cancellata*, nob., and *catenaria*, nob., by being altogether destitute of elevated revolving lines. The young shell is carinated. I am indebted to Mr. Lesueur for a specimen.

MELANIA OBOVATA.—Shell subovate, dark brown or blackish; volutions nearly five: spire remarkably rounded, short: body whirl with a very obtuse, slightly indented band or undulation a little above the middle: aperture more than twice the length of the spire, narrow: labium polished, with a callus above: labrum not projecting near the base, subrectilinear from the shoulder to the basal curve, very convex at the shoulder; base rounded and without indentation.

Animal.—Foot rounded, or rather longer than wide, equally rounded before and behind; above yellowish-white, lineated with black lines.

Inhabits Kentucky River, and some other tributaries of the Ohio. Length, three-fourths; breadth, nearly half an inch. Var. *a.* Indented band almost obsolete.

The spire, and even a part of the body whirl in old shells, are sometimes remarkably eroded, as in the *M.* (*anculosa*) *præerosa*, nob., and, indeed, the general appearance is such, that at a little distance, and without particular observation, it might be readily mistaken for that shell; but the form is less globular and the aperture is altogether different. I found it very abundant in Kentucky River, in company with that shell and other species of *Melania*. I also observed it at the Falls of the Ohio. Lesueur and Troost obtained specimens in Fox River of the Wabash. When young, the undulation is hardly visible, and the shell is often of a dull yellowish color, which on the larger volutions becomes gradually of the characteristic color.

Melania integra.—Subglobose, horn color; volutions rather more than three, rounded, obsoletely wrinkled; spire very short, less than half the length of the aperture: suture rather deeply impressed: body whirl large: aperture dilated, ovate, acute above: columella flattened, polished: labrum regularly rounded: base regularly rounded, without any undulations or sinus: umbilicus none: operculum obviously spiral.

Length, nearly one-fifth of an inch.

Animal.—Foot longer than wide, rounded behind; with the anterior angles a little excurved: eyes black, conspicuous; tentacula rather long and slender.

Inhabits the Ohio river and many of its tributaries.

This is a very common little shell, abounding more in many situations than any other species, particularly in the vicinity of the Falls of the Ohio.

It may readily be mistaken for a young shell.

Melania isogona.—Subglobose, horn color: volutions about four, rounded, obsoletely wrinkled: spire very short, about one-third the length of the aperture: suture profoundly impressed, so as to cause a shoulder on the whirls: aperture much dilated, oval, being as obtusely rounded above as at base: umbilicus linear, distinct: operculum obviously spiral.

Length, under three-tenths of an inch. Inhabits Bear-grass creek, near Louisville.

Not very numerous. It is remarkable by the oval form of the much dilated aperture, and by the deeply indented suture. In old specimens, the base is almost acutely angulated.

Melania trilineata.—Subglobose oval, yellowish, more or less tinged with brown: volutions about four, rounded, somewhat wrinkled: spire short, rather more than half the length of the aperture: suture not very deeply impressed: body whirl with three brownish black revolving lines, of which the two inferior ones are somewhat nearest together, the middle one widest, and the superior one placed near the suture and revolving on the spire; the middle one is concealed on the spire, by the suture: aperture much dilated, ovate, acute above: labium a little flattened: labrum widely and regularly rounded, without any protrusion near the base: base slightly angulated, without any sinus or undulation: umbilicus none.

Inhabits Falls of the Ohio. Length, less than half an inch. Var. *a*. Inferior band obsolete. Var. *b*. Bands obsolete.

This species is allied to the preceding, but is obviously distinct in its general appearance; the volutions are destitute of a shoulder, and the aperture is ovate, acute above. It is a pretty shell, the bands being very conspicuous, strongly contrasting with the yellow general color, particularly in the young and half grown shell.

I obtained about a dozen specimens on the rocky flats of the Falls of the Ohio, at the lower end of the island which is nearest to Louisville.

MELANIA DEPYGIS.—Shell oblong conic ovate, not remarkably thickened: spire as long as the aperture, or rather longer, much eroded, with a broad revolving band near the suture, occupying more than half the surface: whirls about five, hardly rounded: suture moderately impressed: body whirl yellowish, with two equidistant rufous, revolving lines, of which the superior one is much broader and its locality a little flatter than the general curvature: aperture ovate, acute, above, moderately dilated: labium with calcareous deposit, particularly above: labrum not projecting near the base, nor arquated near its junction with the second volution: base regularly rounded.

Inhabits Falls of the Ohio. Length half an inch; breadth, nearly a quarter of an inch. Var. *a*. Color dark brown; bands obsolete.

I found this species in great abundance on the rocky flats at the Falls of the Ohio, where they were left by the subsiding of the river, in company with numerous other shells. In old specimens the spire is very much eroded; the eroded part is white.

PALUDINA TRANSVERSA.—Shell transverse, depressed, orbicular: spire convex: whirls three and a half; with numerous minute, slightly elevated revolving lines: suture not widely indented: body whirl very convex, short: umbilicus small: operculum pale fulvous.

Greatest width, two-fifths of an inch. Inhabits Louisiana.

We obtained two specimens in the marshes near New Orleans. It is much wider in proportion to the length than any other species

I have seen, excepting in this respect even *M. subglobosa*, nob., and especially *P. intertexta*, nob., of which latter, in fact, I at first supposed it to be the young, in consequence of its rotundity and the similarity of its capillary lines; but inasmuch as the number of its whirls is nearly the same, whilst the magnitude differs so greatly, I have separated it as a different species.

PALUDINA INTERTEXTA.—Shell subglobose, yellowish-green or brownish, wrinkled, and with minute, very numerous, obsolete revolving, deciduous lines: spire depressed conic, obtuse, truncated, eroded at tip: volutions nearly four: suture rather deeply indented: umbilicus closed by the lateral extension of the columella.

Greatest breadth, from four-fifths to one inch; length about the same. Inhabits Louisiana.

We collected many of these shells in the marshes near New Orleans and on the banks of the Carondelet canal. It is remarkable for its globular form and for the numerous obsolete lines which seem like equidistant deciduous corrugations of the epidermis, having no effect whatever in modifying the calcareous surface, upon which it exhibits no trace.

PALUDINA ELONGATA, Swainson.—Capt. Leconte presented me with a shell which, he informed me, he found in the river St. John, Florida. I described it nearly four years since under the name of *multilineata;* but, recently, being about to publish it, on a more attentive examination and comparison with a specimen of the *elongata* from Calcutta, given to me by Mr. Hyde of Philadelphia, I have concluded that it varies from that specimen only in having the umbilicus a little smaller.

PALUDINA SUBPURPUREA.—Shell oblong, subovate, olivaceous, with a tinge of purple more or less intense, sometimes hardly perceptible: spire rather obtuse, terminating convexly: whirls five, wrinkled, equally convex: suture impressed, but not very profoundly: aperture much widest in the middle, narrower above: within glaucous, somewhat perlaceous: labrum rectilinear from the middle upwards: umbilicus none.

Length, about one inch; greatest breadth, four-fifths of an inch.

An inhabitant of Fox river, an arm of the Wabash. It is very distinct from any other species I have seen. The labrum exhibits no curvature from the middle almost to its junction with the penultimate volution.

AMPLURIA ROTUNDATA.—Shell remarkably globose; length and breadth equal, dark brown, but becoming olivaceous towards the aperture: spire but little elevated: suture moderately impressed: body whirl a little undulated instead of being wrinkled; these undulations being very perceptible to the finger within the shell; aperture within on the margin thickened equally all round, and fulvous, with a slight groove for the reception of the operculum, hardly visible but palpable: within somewhat perlaceous; a little darker on the columella: umbilicus small, narrow: operculum calcareous, deeply and concentrically rugose, so as to appear stratified; nucleus on the side towards the labium sub-marginal.

Length, less, than one inch and four-fifths; greatest breadth, about the same.

For this interesting species, we are indebted to Capt. Leconte, of the Topographical Engineers, who informed me that he found it in St. John's river, in Florida.

It is most closely allied to the *A. globosa*, Swainson, a native of the rivers of India. But that shell is rather less globose, and does not appear to have the almost regular, but slightly elevated and very numerous undulations so perceptible towards the aperture on the body whirl of this species; which has also a few hardly perceptible, distant, brownish bands, particularly towards the base. It may, however, be only a variety of that species.

AMPULLARIA DEPRESSA.—As the name *depressa*, of the Appendix to Long's Expd. p. 264, is preoccupied by Lamarck for a fossil species, it may be changed to PALUDOSA.

AMPULLARIA FLAGELLATA.—Shell subglobose, olivaceous brown, with 15 or 16 revolving, dull reddish brown, slender bands: spire conic, moderately elevated, acute: body whirl regularly rounded, more obviously undulated or obtusely wrinkled near the aperture: umbilicus free, obvious: labrum a little dilated: within reddish brown: labium, columella, and the margin of the labrum white: operculum horny.

Length, over one inch and a half; greatest width, one inch and two-fifths. Inhabits Mexico.

Occurs in plenty a short distance below Vera Cruz. We found them immediately behind the sand-hillocks of the coast, in situations which, in rainy seasons, are covered with fresh water. We did not see a living specimen; they were mostly decorticated and bleached. Than *A. depressa*, nob., (changed to *paludosa*, nob., as the name is preoccupied,) it has a more elevated and acute spire, larger umbilicus and more regularly rounded body whirl. I am unacquainted with the *A. linearis*, Perry, which he supposes to be a native of the coast of North America.

VALVATA HUMERALIS.—Shell subglobose, depressed: spire convex, not prominent: whirls three and a half, with the shoulder depressed, plane; wrinkled across, or rather with slightly raised lines: aperture appressed to the penultimate whirl, but not interrupted by it; umbilicus rather large.

Greatest breadth, less than one-fifth of an inch. Inhabits Mexico.

Differs from V. *sincera*, nob., of the North-west Territory, in being more depressed, and in having a shoulder or plain surface near the suture. The umbilicus is larger than that of the V. *piscinalis*, Mull., and the spire more depressed; that species is also destitute of the depressed shoulder.

LYMNEUS CAPERATUS.—Shell suboval, a little oblong, obscurely yellowish horn color: spire half the length of the mouth: apex acute: whirls slightly wrinkled across, and with very numerous, equal, subequidistant, elevated, minute, revolving lines: suture not very deeply impressed: aperture rather dilated; fold of the labium not profound.

Inhabits Indiana.

The remarkable character of this species consists in the numerous revolving lines with which the surface is marked; but these are so minute as to require the aid of a magnifier to bring them to view. It was found on land subject to inundation, near New Harmony, by Dr. Troost.

LYMNEUS ATTENUATUS.—Shell elongate turreted, somewhat translucent: spire slender, attenuated, acute: whirls six or seven, with but a very slight convexity; wrinkles more distinct towards the aperture: body whirl, measured at the back obviously less than half the total length.

Length, one inch. Inhabits Mexico.

This species abounds in the ditches and ponds in the vicinity of the Capitol. It is more nearly related to *L. reflexus*, nob., than to any other known species of North America; but it is only necessary to compare the two in order to perceive a wide difference between them. The present is smaller and proportionally more slender, and the spire is more attenuated.

NOTE.—BULLA FLUVIATILIS, nob., seems to be no other than the very deceptive young of our common Planorbis.

ANCYLUS TARDUS.—Shell conic depressed: apex behind the middle obtuse, rounded, inclining backward but not laterally: line from the apex to the posterior tip rectilinear; line from the apex to the anterior tip arquated: aperture oval, not distinctly narrowed at one end.

Length, a little over three-twentieths 4-25; breadth, one-tenth of an inch.

Differs from *A. rivularis*, nob., which has the apex leaning towards one side, and the aperture narrower at one end. It is less elongated than *fluviatilis*, Drap., which has an acute and laterally inclined apex.

It inhabits the Wabash River.

[No. 6. Transylvania Journal of Medicine, vol. 4, p. 525, et seqq. 1831.]

UNIO INTERRUPTUS, UNIO GLEBULUS,
" NEXUS, " DECLIVIS,
UNIO LAPILLUS.

[The descriptions of these species were afterwards repeated fn the "American Conchology." For the sake of greater convenience they will be found under that head. They were not included in Mrs. Say's "Descriptions."—ED.]

[No. 7. American Conchology.]

[Am. Con., part 1, 1836.]

ASTARTE.—Shell suborbicular, generally transverse, equivalve, inæquilateral, closed entirely; hinge with two strong, distinct, diverging teeth on one valve, and on the other two very unequal teeth and a lateral obsolete one; ligament exterior; muscular impressions two, and a minute one above the posterior impression, almost confluent with it; impression of the mantle simply arquated, distinct.

* [No description already included in my reprint will be repeated here, but any additional remarks, &c., will be given.—ED.]

Obs. A genus, containing but a small number of species, instituted by Sowerby under the name we have adoptod. Lamarck appears not to have been aware of the previous existence of this genus, when he published it under the name of *Crassina* in his Anim. sans Vertebr. He referred it to his *Nymphacées tellinaires;* but we agree with Sowerby, in the opinion, that its proper place is with his *Conques marine;* from all of which it is distinguished by its cardinal teeth and interior impressions.

Blainville in his "Manuel de Malacologie et de Conchyliologie" places it as a division of his genus *Venus*, under the following characters:

"Solides, épaisses, suborbiculaires, subéquilatérales; deux très-grosses dents divergentes sur une valve, et deux très-inégales sur l'autre; les impressiones musculaires réunies par une ligule sans sinuosité postéricure." He informs us that Defrance has announced the existence of eighteen fossil species, and we described two in the Journ. Acad. Nat. Sci.

ASTARTE CASTANEA.—*Specific character.* Beaks nearly central; epidermis chestnut-brown.

Venus castanca, nobis. *Jour. Acad. Nat. Sci., vol. ii. p.* 273.

Obs. It is longer in proportion to its breadth than the *danmoniensis* of Montague, and is destitute of the fine and regular striæ, with which the *obliquala* is marked. Pl. 1.

PANDORA.—Shell transversely oblong, inæquilateral, inequivalve, unattached, regular, somewhat rostrated; left valve flattened, with from one to three teeth extended upon the inner surface of the shell, with a fosset for the ligament; hinge margin inflected; right valve convex, teeth one less than in the left valve, with the corresponding fosset; ligament internal, attached to an elongated fosset or cicatrice, which inclines towards the anterior margin; muscular impressions two, distant, lateral.

"Animal very much compressed, elongated, in the form of a sheath, by the union of the edges of the mantle and its continuation with the tubes, which are united and very short; foot small, thicker before, exserted by a large slit in the mantle; branchiæ pointed backwards and continued into the tube."—(Blainville.)

Obs. The hinge teeth extend on the inner surface of the shell in some degree like those of *Placuna*, to which genus this seems to be allied, both by the position of the teeth and the perlaceous consistence of the shell; but it is eminently distinguished by having two muscular impressions. Lamarck, who first characterized the genus placed it next to *Corbula*, chiefly, perhaps, in consequence of the inequality of its valves.

Two species only are described by Lamarck, the *inæquivalvis*, Linn., and the *obtusa*, a newly described species. Sowerby has added another, under the name of *flexuosa*. According to Blainville, two fossil species have been discovered by Defrance. The animal is so similar to that of *Solen*, that Poli has referred it to the same genus, which he calls *Hypogea*.

PANDORA TRILINEATA.—*Specific character*. Hinge margin bilineate from the beak to the tip; valves not very inæqual. Pl. 2.

Pandora trilineata, nobis. *Journ. Acad. Nat. Sci., vol. ii. p.* 261.

OLIVA.—Shell subcylindric, oblong, smooth, more or less polished; epidermis none; spire short; suture canaliculated, the edge of each volution extending a little upward, canal bounded above by a revolving, carinate callus; body whorl near its base with a slightly elevated band, beginning below the middle of the aperture and revolving to the base of the labrum; aperture elongated; labrum and columella with calcareous deposite, much striated, striæ on the latter more elongated; base deeply emarginate; operculum none.

Obs. The smoothness and polish of these beautiful shells are no doubt owing to the extension of the smooth surface of the mantle of the inhabitant, over their whole exterior. The animal is not yet well known, but Lamarck supposes it to be carnivorus. It is marine.

Of all the species figured in the books, and existing in the collections, Linné formed but about two species, which he referred to his genus *Voluta* under the names of *oliva* and *porphyra*. Bruguière applied to them the present generic name, which was adopted by Lamarck, who, with his usual acute perception of natural differences, described more than sixty species, among which are a few that exist only in the fossil state, and according to Blainville, thirty-two new species have been added by M. Duclos, from the coast of New Guinea.

This genus is closely allied to *Ancilla*, which, however, is destitute of striæ on the labium and the spiral canal is completely filled up. From *Terebellum*, to which it is also allied, it may be distinguished by the striated labium and columella, and the elevated band at the base of the body whorl, and from *Mitra* and *Voluta* by the canaliculated suture.

OLIVA LITERATA, Lam.—*Specific character.* Shell with numerous angulated brownish lines and two bands of chestnut-brown ones.

Oliva literata, Lam. *Am. du Mus., vol. xvi., p.* 315; and *Anim. sans Vertebr., vol. vii., p.* 425.

Oliva. Encycl. Meth., pl. 362, *fig.* 1, *a, b.*

Desc. Shell with a pale yellowish-white ground color, thickly covered with cinereous-rufous angulated lines, leaving distinct triangles of the ground color; on each side of the middle is a broad band, occasioned by the angulated lines being there of a deeper or chestnut-brown color; the angulated lines at the upper edge of the volutions are fasciculated and of the same color of the bands.

Obs. We are far from being certain that this is absolutely the *literata* of Lamarck, although it agrees perfectly, except in being smaller, with the figures above quoted, to which he refers. He supposed his specimens to be natives of the East Indies. However this may be, and although we formerly described it under another name, we think it more prudent to consider it as indicated by Lamarck's description and the figures of the Encyc. Methodique.

It is rather common on our Southern coast. Pl. 3.

UNIO.—Shell unattached, generally transverse, equivalved, inequilateral; cardinal teeth one in each valve, irregular, generally striated, simple or biparted; an elongated lamelliform tooth on the anterior hinge margin of the left valve, and two similar teeth on the corresponding margin of the right valve; muscular impressions two principal ones; ligament exterior.

Obs. In North America the shells of this genus excel those of any other country in magnitude, beauty and diversity of species. They are altogether inhabitants of fresh water, and we have hardly a rivulet in the Union in which they are not to be found. Many of them are of a beautiful perlaceous color and consistence, and we are informed that some of the very thick ones of the Ohio, have been, at Pittsburgh, successfully turned into buttons and ornaments.

This genus is closely allied to *Dipsas*, Leach, *Hyria* and *Iridina*, Lam., *Alasmodonta*, nob., and *Anodonta*, Brug. But the former has lamelliform teeth only; *Hyria* has lamelliform teeth on both sides; *Iridina* and *Anodonta* are destitute of teeth and *Alasmodonta* is destitute of lamelliform teeth. To this exposition we may add, as more remotely allied, the *Megadesma* of Bowd., which has two cardinal teeth in one valve and three in the other, with a remote indistinct tooth on each side; characters that indicate an approach to *Cyrena*. Some of these genera are so intimately linked together by intermediate species, particularly the *Unio* and *Anodonta*, there being one or more in our streams, that it is somewhat difficult to determine in which of the two genera it ought to be placed. Consequently, those naturalists who advocate the union of such genera as are connected by intermediate species, will be compelled to unite these, and on the same principle they must reject great numbers of genera long since firmly established.

UNIO TRIANGULARIS, Barnes.—*Specific character*. Shell triangular, very convex; anterior margin forming a right angle with the disk.

Unio triangularis, Barnes. Silliman's Journal, vol. 6, *p.* 272, *pl.* 13, *fig.* 17.

Unio cuneatus, Swainson. Tilloch's Magazine, December, 1823.

Desc. Shell triangular, very convex, gaping at the extremities; anterior margin very much flattened, forming a right angle with the disks; having longitudinal slightly elevated lines crossing the transverse wrinkles; ligaments very short; anterior tip angulated; posterior margin rounded, destitute of distinct lunule; epidermis pale yellowish-olivaceous, radiated with green, interrupted into short lines and spots, which are sometimes sagittate, and disappear on the margins of the old shell.

Obs. It is highly probable that the present species is the *cuneatus* of Swainson; it certainly agrees with his description. But this is of little consequence, as Mr. Barnes' name has the priority, and he has also preoccupied the name which Mr. Swainson has chosen.

Mr. Barnes correctly remarks that this shell in shape resembles *Alasmodonta marginata*, nob. The extraordinary depressions of the anterior margin is very characteristic and readily distinguishes it from other species. As the shell increases in age, this margin becomes a little elevated at tip, as is exhibited in our figures, and the position of the beaks varies a little. The umbonial slope is often elevated into a rib, and the striæ occupy a considerable part of the shell and become so profound as almost to denticulate the edge of the shell. Pl. 4.

UNIO SULCATUS, Lea.—*Specific character.* Transversely subquadrate; posterior margin not extended beyond the umbones.

Unio sulcatus, Lea. Trans. Amer. Philos. Soc., vol. 3, *N. S.*

Desc. Shell very obliquely transverse, subquadrate; with an indented groove extending from the umbo to the anterior and anterior basal margins, between which the edge is somewhat retuse; epidermis yellowish-olivaceous, with radiating, deep green, more or less undulated lines; summit near the posterior extremity, prominent; anterior margin with two obtusely rounded angles, a little gaping; cavity of the hinge membranes behind the summits deeply excavated, nearly as long as wide, distinctly angulated behind; posterior margin regularly rounded, remarkably short, hardly extending beyond the line of the posterior tip of the umbo; within perlaceous-white, more particularly iridescent before; teeth regular, anterior cardinal tooth parallel with the lamelliform tooth, which is very slight arquated; posterior muscular impression deep; sinus of the cartilage very slight, regular; cavity of the umbo not deep, its muscular impressions obvious; palleal impression somewhat truncate before, and not extending anteriorly beyond the line of the muscular impression.

Var. *a.* Within, except on the anterior margin, purple or livid.

Obs. It occurs in the Wabash and Ohio rivers. In order to avoid confusion, I may mention that the present species is in many of the European collections, sent by me within the last five years, under the name of *flagellatus.* Pl. 5.

UNIO RIDIBUNDUS.—*Specific character.* Subquadrate; emarginate before and denticulated on the anterior basal angle.

Desc. Shell transverse, subquadrate oval, olivaceous, radiate with capillary deep green lines; summits somewhat prominent, nearly terminal: cavity of the hinge membranes oval, rather larger behind the beaks than broad: posterior side very short: anterior side with a groove, obsolete on the umbo, but becoming deeper to the anterior edge, which is consequently emarginate a little below its middle; a little gaping; the inferior angle somewhat more prominent, rounded and denticulated: anterior muscular impression very deep: palleal impression emarginate opposite to the denticulated angle: above this angle also, the concavity is abruptly more concave, so as to form a definite dilated groove.

Var. *a*. Within deep reddish purple.

Obs. The remarkable character of the anterior basal angle or lobe of this species, renders an extended and more particular description unnecessary. In the figure of the annexed plate, we have brought this character particularly into view, by a delineation of the front of the shell, and two or three series of the teeth are visible in some specimens, like varices in the univalves, on the surface of the shell, fringing the deeper undulations or wrinkles. [We may remark that in our figure these teeth have too much of a serrated appearance; they are in reality more tooth-shaped, though slender.] It has considerable resemblance to the *sulcatus*,* Lea, in general form, brevity of the posterior side, summits, cavity of the hinge membranes and radiated surface, but the denticulated anterior edge, the more acute anterior groove and other subordinate characters, amply distinguish it. It is a small species, even smaller than the *sulcatus*.*

A remarkable and gigantic variety occurs in Cumberland river; a specimen is rather more than two inches wide and the radii are interrupted into spots. It may prove to be a distinct species when more specimens are obtained for comparison, and it may in that case be distinguished by the name of PERPLEXUS. For a specimen of it I am indebted to Mr. Lesueur. Pl. 5.

UNIO MONODONTA.—*Specific character*. Transversely elongated; inner margin whitish or livid; lateral teeth obscure.

Desc. Shell transversely much elongated, slightly arquated, blackish-brown; umbonial slope (Swainson) widely rounded, not abruptly elevated: umbo placed far back, not prominent above the general curvature; hinge and basal margins a little arquated, parallel: anterior and posterior margins regularly rounded: within perlaceous, with an opake whitish or livid margin: primary teeth simple, small: lateral teeth very imperfect; that of the right valve with only an impressed, short line, instead of the usual deep recipient fissure.

I obtained numerous specimens at the Falls of the Ohio, on the rocky flats which are exposed in a low state of the water. Its elongated form is somewhat similar to that of the *rectus*, Lam.; but it is much thinner, more widely rounded before, and more compressed, particularly anteriorly. Its teeth distinguish it from any other species hitherto described. Old shells are very much decorticated and eroded; and in some individuals, the impressed line on the lateral tooth is hardly perceptible: still it cannot for one moment be mistaken for an *Alasmodonta*, as the habit is quite different. Mr. Lesueur has presented me with a specimen found in the Wabash. Pl. 6.

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* [I change *flagellatus* to *sulcatus*, in accordance with an erratum of the author.—ED.]

DELPHINULA.—Shell spiral, subdiscoidal or conic, umbilicated; whorls rough, foliaceous or angulated on the surface; aperture orbicular, entire; labia united, often fringed or furnished with a peristome.

Obs. Linné referred the *laciniata* and *distorta*, the only species known to him, to the genus *Turbo*, in consequence of the rotundity of the aperture; but Lamarck separated them, and with a number of new species, chiefly fossil, formed the present group. Lamarck observes that they "evidently approach the *Scalariæ*," and among them we also see species, of which the spire is loose, and the volutions separate. In addition to the above mentioned species, Lamarck gives one or two others and about ten fossil ones. Defrance enumerates about thirty species.

DELPHINULA ? LAXA.—*Specific character*. Whirls all separate and distinct. Pl. 7.

Delphinula laxa, nobis. Journ. Acad. Nat. Sci., vol. 5, *p.* 207.

MELANIA.—Shell turrited, rather thick, covered by an epidermis; spire generally elongated; aperture ovate or oblong, longer than broad, acute above; labrum simple, acute, prominent near the base and rather abruptly retracted at its junction with the base of the columella, and not united above to the labium; columella destitute of a fold, arquated towards the base; operculum corneous; umbilicus none.

Obs. Before Lamarck perceived the necessity of establishing this group, some of the species were variously arranged. Linné, Lister, Schroeter, and others, considered them as belonging to *Helix*; Muller to *Nerita* and *Buccinum*; Bruguière to *Bulimus*, and Chemnitz referred one species to *Strombus*. The genus differs from *Helix*, *Lymneus*, &c., by having an operculum as in *Paludina*, *Ampularia,* and *Valvata,* and from these, in addition to other differential traits it may be distinguished by the disunion above of the labiæ. It strongly resembles *Melanopsis, Pirena* and *Potamides,* but these are distinctly and unequivocally emarginated at base.

The animal respires water; it has a short, conic-cylindric, obtuse rostrum; two acute tentacula having the eyes at their exterior base; foot short and obtuse.

They are inhabitants of fresh water, chiefly in the tropical regions; but many species are very abundant in the rivers, lakes and small streams of the United States. No recent ones have been found in Europe, but several have occurred fossil in comparatively recent formations. No fossil species have yet been found in this country. Lamarck described sixteen recent and twelve fossil species; but Defrance enumerates thirty-six species.

MELANIA NUPERA.*—*Specific character.* From one to four or more revolving series of tubercles.

Obs. It varies in the number of its series of tubercles, some specimens having but one, and others, though these are rare, as many as five or six. Plate 8. Middle figure exhibits the young shell.

MELANIA DEPYGIS.*—*Specific character.* Body whorl yellowish, with two equidistant, revolving, rufous lines.

Obs. It varies a little in color, and a few occurred, of which the color is fuscous, the bands being obsolete. Pl. 8, lower figures.

LUTRARIA.—Shell equivalve, inæquilateral, transversely oblong or subovate, gaping at the extremities, particularly at the posterior extremity; cardinal teeth two, of which one is doubled in the shape of a V, the other simple, with a large deltoid cavity situated obliquely near the teeth; lateral teeth none; ligament internal, inserted in the cardinal cavities, not visible when the shell is closed; muscular impressions two, lateral, remote, simple; impression of the mantle extending to the muscular impressions and having a large and profound sinus extending nearly half its length.

Obs. Lamarck separated this group from the Linnæan *Mactræ,* from which it is essentially distinct by the absence of lateral teeth as well as by other less striking characters. The animal has a large fleshy cylinder, containing two tubes, one for respiration and the other evacuation, situated at the posterior extremity. The foot is small and compressed, placed at the opposite extremity or near it.

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* [Mr. Say makes no reference to the previous descriptions of this species in N. H. Diss.—ED.]

It is a littoral genus, inhabiting estuaries and near the mouths of rivers.

Blainville unites this genus with *Ligula*, Leach, under the generic name *Lutricola*. Lamarck describes eleven recent and one fossil species.

LUTRARIA LINEATA.—*Specific character.* Posterior margin with a reflected edge and submarginal carinated line.

Lutraria lineata, nobis. Jour. Acad. Nat. Sc. vol. 2, *p.* 310.

Lutraria papyracea? Lam. Anim. sans Vertebr. vol. 5, *p.* 470.

Obs. The elevated line of the posterior submargin and the reflected posterior edge are very characteristic, distinguishing this species from all others, excepting the figure 2 of the plate on *Lutraria* in the second volume of Mr. Sowerby's excellent work on the "Genera of Recent and Fossil Shells." Our shell is much shorter on the posterior end than his figure, which he refers with doubt to the *papyracea* of Lamarck; a difference which, however, may be attributable to an inequality of age, as it becomes more elongated anteriorly in the older shell. Whether or not the present species is the same as that of Lamarck we cannot at present determine, but it is without doubt closely allied to it. Still, however, it does not agree with the figure in the Encycl. Meth. 257, fig. 2, a, b, quoted by Lamarck. Pl. 9.

PALUDINA.—Shell fluviatile, conical, subovate or suboval, covered by an epidermis; spire moderate; whorls convex; aperture longer than broad, angulated above, simply rounded at base; labrum simple, acute, united above to the extremity of the labium; labium simply arquated; operculum corneus or coriaceous, suborbicular, slightly angulated above.

Obs. The species of this genus were widely separated from each other by former authors, and referred to the Genera *Helix*, *Turbo*, *Bulimus*, *Nerita*, and *Cyclostoma*; but Lamarck selected and embodied them under the present designation, and they now constitute a natural group.

They may be distinguished from *Cyclostoma* by the simple labrum, as well as by other characters of the shell, as also of the animal, from *Melania* by the simple curvature of the labrum at at base, and from *Valvata* by the form of the aperture which is not angulated above in that genus.

The animal has two linear-acute tentacula, with the eyes at their exterior base; anterior part of the body with a small membranaceous wing on each side, the right one is "recurved in a small canal, which introduces the water into the respiratory cavity;" "the branchiæ are composed of parcels of filaments, which are attached to the sides of the branchial cavity," and are altogether internal, a character which distinguishes them from the animal of *Valvata*.

They inhabit fresh waters and are very common in almost all our lakes and streams. As they respire water, they do not so uniformly reside near the water's edge as the *Lymneæ*, which respire air only. Like them, many of the species, if not all, have the power to swim at the surface in a reversed posture, the foot being applied to the surface, and the shell being downward.

Lamarck describes seven recent species, and Defrance enumerates five fossil ones.

PALUDINA DECISA.—*Specific character.* Aperture more than half the length of the shell, within bluish-white.

Cochlea virginiana è flava viridescens, non faciata, Lister. Conch. tab. 127, *fig.* 27.

Petiver gazophyl, tab. 106, *fig.* 18.

Paludina decisa, nobis. Nicholson's Encycl. (*Amer. Edition,*) *article Conchology, pl.* 2, *fig.* 6.

Obs. The species is very common in various parts of the Union. Dillwyn informs us that Muller and others have incorrectly quoted Lister's figure for their *Helix angularis.* Pl. 10, the upper and lower figures.

PALUDINA VIVIPARA, Lin.—*Specific character.* With about three reddish-brown revolving lines.

Cochlea vivipara fasciata. Fluviatilis, Lister. Conch., tab. 126, *fig.* 26.

Helix vivipara, Linn., Gmel. and others.

Nerita vivipara, Muller, Verm., p. 182.

Cyclostoma vivipara, Draparn., pl. 1, *fig.* 16.

La vivipare à bandes, Geoff. Cuvier.

Paludina vivipara, Lam. Anim. sans Vertebr., vol. 6, *2nd part, p.* 173. *Nobis. Nicholson's Enc.*

Obs. This appears to be one of the many species, that are common to North America and Europe. And though the specimens from the two continents differ a little, yet this difference is so slight as not to be specific. Cuvier remarks that "the female produces living young, which are found in its oviducts, in the spring, in every state of development. Spallanzani assures us, that the young, taken at the moment of their birth and nourished separately, reproduce without fecundation, like those of the *Aphis*. The males are nearly as common as the females; their generative organ is exserted and retracted, as in *Helix*, by a hole pierced in the right tentaculum, which causes this tentaculum to appear larger than the other. By this character the male is easily known."

The *vivipara* is far less common than the *decisa*, and seems to be more usually found in the southern part of the Union. Mr. Elliott of Charleston sent me two specimens from the banks of St. John's river, Florida, and Capt. Leconte presented me with one, which he obtained at Lake George on the same river. Pl. 10, the two middle figures exhibit the brownish banded var.

[Am. Con. vol. ii. April, 1831.]

ANODONTA.—Shell equivalve, inequilateral, transverse, regular; hinge margin linear, without teeth having a sinus before; ligament external, elongated, terminating in the anterior sinus; muscular impressions two, remote, posterior one compound.

Obs. These are shells of rather large size, residing in fresh water streams and lakes. They are generally perlaceous within and greenish on the exterior. Although the genera *Anodonta* and *Unio* are closely allied, yet the species were widely separated by Linné, who referred those of the present genus to *Mytilus*, whilst those of *Unio* he associated with the *Myæ;* but an arrangement so artificial could not escape Bruguières. He perceived their affinities, and grouped them under the above mentioned denominations. Several other allied genera have been formed by subsequent naturalists, distinguished from the present by the existence of either cardinal or lamellar teeth, with the exception, however, of *Iridina* of Lamarck, which has an elongated, linear, crenulated hinge, and was placed by Bruguières in *Anodonta*, to which, indeed, it is intimately linked by the *I. nilotica*. Ferussac, in his Tableaux Syst., included all the genera of this family in four, viz., *Anodonta*, *Hyria*, *Unio*, and *Castalia*. Sowerby has since proposed to retain *Unio* only, and, as Ferussac had already done, to consider the other genera as subgenera.

Blainville describes the animal nearly thus: Body large, thick, more or less oval; mantle thickened on the margin, simple or fringed, and excepting on the back, open all around; anus oval, distinct; a kind of small incomplete tube, furnished with two ranges of cirri, for the respiratory cavity; foot very large, compressed, lamelliform.

The principal naturalists and anatomists have been decidedly of opinion that the animals of this family are hermaphrodites; but Mr. Prevost, of Geneva, affirms that he observed, in some individuals of the *Unio pictorum*, the existence of spermatic animalculæ, which he could not perceive in those which contained eggs. He therefore inferred that the sexes were distinct. This led Blainville to a re-examination of the subject: he dissected about forty individuals of the genera *Unio* and *Anodonta*, without discovering any indications that could lead him to suppose the existence of the male sex; still, however, he is in doubt, and we are very much inclined to believe, with Ferussac, that Prevost may be right, but that more observations and observers are required fully to establish this disputed point, although Baer has gone far towards even this object. Treviranus also made some interesting observations on this subject, an account of which he published in the Zeitsch. fur Physiol. in 1824. He was of the opinion that the same organ produced both the ova and the fecundating fluid. He, however, remarks that he found, at the season of excluding their eggs, many that were entirely destitute of them.

Some naturalists have changed the designation of this genus to *Anodon*, as being more rigidly correct.

ANODONTA SUBORBICULATA.—*Specific character*. Suborbicular, a little winged.

Desc. Ovate-orbicular, rather compressed; pale olivaceous tinted with flesh color; with very slender, almost capillary, and very numerous, obsolete greenish radii; sometimes with more or less obvious, transverse, yellowish bands towards the base; beaks not elevated above the general surface, with two or three rows of very small tubercles: hinge margin nearly rectilinear, compressed behind, and anteriorly compressed almost into a wing: ligament, particularly in the young specimen, concealed: posterior margin rounded: anterior margin a little prominent, obtusely angulated; basal margin much arquated: within undulated almost as obviously as on the exterior; pale bluish, varied with pale flesh color, and somewhat iridescent before and behind: cicatrices slightly impressed.

Length about four inches. Breadth five and three-tenths. Convexity nearly one inch and three quarters.

A large and fine species. Some time since, Mr. O. Evans obtained an individual, which I hesitated to publish as new, thinking it might possibly be a young remote variety of the *A. grandis*, nob., but subsequently, having received adult and perfect specimens from Mr. Evans, I found that it is uniformly longer, more rounded, much more compressed, and having a different aspect. It is found in ponds, near the Wabash river, but rarely, if ever, in the river itself, as it prefers still water and a muddy bottom. In form it approaches nearer to orbicular, than any other species that we have seen described.

An American conchologist was of the opinion that all our *Anodontas* are referrible to one species; but we conceive that the present species, cannot with more propriety be united with the *cataracta* and *marginata*, nob., not to mention the more elongated species, than the various species of *Unio* can be considered as no other than *U. picta*, L. Pl. 11.

NUCULA.—Shell transverse, equivalved, inequilateral; summits contiguous; hinge with a primary, more or less triangular fosset for the reception of the ligament, with an anterior and posterior series of small, inserted, numerous, pectinate teeth, interrupted at the summit by the fosset; ligament internal, very short, inserted into the fosset; muscular impressions two, simple.

Obs. A genus connected with *Arca*, *Pectunculus*, *Cucullæa*, and *Trigonia*, but eminently distinguished by the ligament being interior; which, as has been remarked by Sowerby, proves their relation to the *Mactraceæ*. Many species are known. Lamarck described six recent and the same number of fossil species; Sowerby four fossil and one recent; Defrance enumerates twelve fossil, and we have published two recent and two fossil species. Of all these the *tellinoides*, Sowerby, and *lanceolata*, Lam., appear to be the largest.

The inhabitants are thus described by Blainville: body subtriquetrous; mantle open on its inferior half only, the margins entire, denticulated on the whole length of the back, without posterior elongations; foot very large, thin at its origin, dilated in a large oval disk, the margins of which are furnished with tentacular digitations; anterior buccal appendices very long, pointed, rigid, and applied against each other like a kind of jaws; the posteriors equally rigid, and vertical.

NUCULA LIMATULA.—*Specific character.* Oblong-ovate, rostrated, pellucid; beaks subcentral, not elevated; margin entire.

Desc. Shell transversely elongated subovate, green olive, nearly pellucid, smooth, polished, with slight indulations of increment: beaks not prominent above the curve of the hinge margin; hinge margin anteriorly abruptly compressed; the compression not reaching the tip; rectilinear nearly to the tip which is a little recurved; posteriorly almost regularly, but obtusely arquated: posterior margin regularly rounded: anterior margin somewhat rostrated, not truncated: within a little perlaceous: margin entire: line of the teeth slightly interrupted and a little angulated at the fosset, extending more than two thirds of the length of the shell, rectilinear before and behind: teeth prominent, numerous, acute, much angulated at their bases and longer than the breadth of their bases: fosset triangular, short, rather small, and but little oblique.

This pretty species was presented to me by Nuttall as having been taken from the stomach of a fish at Nahant, Massachusetts.

It resembles the *N. fluviatilis*, Schröter, and the *N. rostrata*, Montague, but the rostrum is not truncated, and the summit is more central than in those species. It is still more closely related to *N. lævis*, nob., but it is proportionably a little longer, and in that species the posterior series of teeth is a little arquated, and the compressed anterior hinge margin extends quite to the tip. I must say, however, that I have seen but a single specimen, and but a single valve of the present shell. The *N. arctica*, Gray, which this might be supposed to resemble, is said to be "posticé brevi, obliquè truncato." Pl. 12.

For comparison I add, from the Journal of the Academy of Natural Sciences, the following description and figure of *N. lævis*, and also those of a smaller and quite distinct fossil species.

[NUCULA LÆVIS, pl. 12, right hand figure, and NUCULA CONCENTRICA, pl. 12, left hand figure, being fossil species, I have not given the descriptions, J. A., iv. p. 141.—ED.]

UNIO ELLIPSIS, Lea.—*Specific character.* Shell very oblique, suboval; summit prominent, as long as the posterior side.

Unio ellipsis, Lea. Trans. Amer. Philos. Soc. (*new series*) *vol.* 3, *pl.* 4, *fig.* 4.

Desc. Shell very oblique, oval-subovate, ventricose, ponderous: disk convex, lines of growth deeply impressed, somewhat undulating the surface; yellowish-olivaceous, more or less radiate with green, particularly before; never spotted; the old shell uniform brown or fuscous: margin regularly arquated, even at the anterior tip: summit prominent, as long as the posterior side: posterior side remarkably short: cavity of the hinge membranes profound, much dilated between the summits and not extending posteriorly beyond the line of the summits; visible portion triangular, its posterior line transverse, slightly arquated, widest: within white, perlaceous, iridescent before: teeth large, prominent, the cardinal anterior of the right valve and both of the left valve parallel to the lateral teeth, which are a little arquated, those of the right valve united at tip and even after the union a little more elevated than the surrounding surface: sinus of the cartilage, regular, definite: cavity of the umbo not deep, its muscular impressions very distinct: posterior muscular impression remarkably deep, subobconic: palleal impression anteriorly arquated, hardly extending beyond the line of the muscular impression.

Obs. This species is not uncommon. The young shell which we have represented in the plate has a different coloring from the old specimen, which is of a uniform dark, or even blackish-brown, the radii being entirely invisible. It varies in its radii, some being radiated over the whole surface, others having a capillary radii only on the anterior side and others being entirely destitute of radii at all ages. Another variety is tinged with rosaceous, especially on the hinge laminæ. In its youth it somewhat resembles the *sulcatus*, Lea, but is distinguished by many characters, and remarkably by being destitute of any sulcation anteriorly. The largest one I have seen was nearly four inches in its greatest diameter; but this is gigantic for the species. Pl. 14.

UNIO SUBTENTUS.—*Specific character.* Transverse; anterior dorsal margin sculptured with small elevated costæ.

Unio subtentus, nobis. Jour. Acad. Nat. Sc. vol. 5, *p.* 130.

Obs. In general outline this shell has some resemblance to *U. purpureus*,* nob.; but is distinguished by many characters, and more obviously by the character of the anterior costated margin. Pl. 15.

UNIO UNDULATUS, Barnes.†—*Specific character.* Transversely undulated; umbo literate.

Unio undulatus, Barnes. Silliman's Journal, vol. 6, *p.* 120, *pl.* 2.

Desc. Transversely oval, somewhat oblong, with large, distinct undulations, three or four in number, directed towards the anterior margin and not proceeding directly from the umbo: surface with a few abbreviated, longitudinal lines, placed without any regularity: umbo placed far backward, not prominent, hardly elevated above the general curvature, more or less literate with short, irregular lines, or slight elevations: hinge margin compressed, nearly rectilinear, prominently angulated or subalated at tip, in the more perfect specimens with numerous, connected, regular lines, curved to the edge and undulating it: anterior margin rectilinear from the extremity of the hinge margin to the rounded inferior half, and undulated by the tip of the grooves of the disk: posterior margin very short, regularly rounded: base very obtusely rounded, in many specimens a little contracted near the anterior termination: fosset elongated, very distinct: within bluish-white; perlaceous.

This large and handsomely sculptured shell, was found in the Fox river of the Wabash, by Mr. Lesueur and Dr. Troost.

It resembles *U. plicatus*, nob., but on comparison it will be observed to differ very essentially from that common species. The umbo and beaks of the *plicatus* are very prominent and altogether destitute of any small literations or divaricating lines, having only the origin of one or two of the large undulations grooved upon it. The primary teeth of the *plicatus* also are much thicker than those of this species.

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* Although Mr. Lamarck quotes the proper name of this species as a synonym, yet he has by some error changed it it to *purperascens*. That it is an error is to be inferred from the observation under his description of *U. carinifera*, where he says, "très-distinct de l'U. *purpurea*."

† [This is *U. heros* of N. H. Dis. ii. p. 291.—ED.]

I formerly considered this species, with much doubt, as distinct from the *undulatus* of Barnes, and gave to it the name of *heros*, but notwithstanding some differences, I have concluded, after a more mature examination and comparison, that it may be with propriety referred to that species. Barnes drew his description and figure from a specimen then unique, belonging to the cabinet of Mr. S. B. Collins, which was so eroded as not to exhibit the ornamental tubercles of the umbo and beak.

The dimensions of a fine specimen found by Mr. O. Evans are, length five inches, breadth over seven, and convexity two inches and seven-tenths.

It is not uncommon in Fox river, an arm of the Wabash, in muddy and sluggish parts of the stream. Pl. 16.

UNIO ABRUPTUS.—*Specific character*. Subquadrate, truncate before.

Desc. Shell oval-quadrate, yellowish olive or brownish, slightly radiated with blackish-brown narrow lines, which do not extend to the base : umbo not very prominent, rounded, slightly compressed, generally radiated with obscure greenish, and placed far back, almost terminal : disk convex, anteriorly with a hardly raised, very obtuse elevation, becoming obvious towards the margin and a little prominent at the anterior basal angle : hinge margin a little depressed, so as to form an angle with the disk, more acute towards the umbo: ligament higher than the beaks : anterior margin truncated by an almost straight line : basal margin very slightly contracted : posterior margin very short, gaping considerably from the middle of the base to the cavity of the hinge membranes : cavity of the hinge membranes very obvious, rather wide, as long or longer behind the beaks than broad : within white, or tinged with very fine fulvous-pink, or salmon color ; posterior cicatrix profound ; smaller cicatrix rather large, oblique, arquated : palleal impression hardly more prominent than the anterior cicatrix : cardinal teeth thick, direct ; that of the left valve subtrifid : tooth plate rather broad, projecting in a ledge on the inner side of the lamelliform tooth of the left valve.

Var. *a*. Anteriorly more prominent and hardly truncate.

Obs. The color of the inner surface is, in most specimens very beautiful. The umbo is generally decorticated, exposing a surface slightly tinged with the color of the cavity of the shell. The internal surface of this shell, as in several species, is minutely granulated and undulated; a character very sensible under the magnifier.

Some conchologists have considered this shell a mere variety of the *cariosus*, nob., probably because, like that species, it is generally more or less truncated before; but there are other characters which appear to me to forbid a specific union. The *abruptus* is always of much less breadth, the beaks much nearer to the posterior extremity, the perpendicular length from the beaks to the base much greater; the cardinal teeth direct, much more robust, that of the left valve being trifid: whereas in *cariosns* the cardinal teeth are slightly oblique, bifid in each valve, and the plate on which the teeth rest is much more slender, even when the general thickness of the shells is the same. It is more closely related to *U. ellipticus*, Barnes, by the variety *a*; but although the teeth are nearly similar, yet that species is never truncated, the beaks are never situated so far back; the cavity of the hinge membranes is much narrower; the anterior division of the cardinal tooth of the left valve is less obvious, and the ledge on the inner side of the lamelliform tooth of the same valve is but slight; the aspect or habit also is quite different. It occurs frequently in the Wabash. Pl. 17.

Solecurtus.—Shell equivalved, transversely elongated, gaping at the extremities, which are obtusely and equally rounded; hinge and basal margins nearly parallel; apex not prominent; hinge distant from the extremity; ligament external, short; muscular impressions two, remote, oval or angular, distinct; impression of the mantle profoundly sinuous before; teeth various, generally imperfect.

Obs. A genus formed by Blainville to receive ten or twelve species, hitherto referred to the genus *Solen*, and to which they are indeed very closely allied. He divides this genus into three parts, viz:

A. Compressed, thin, with an anterior rib, obliquely decurrent from the apex to the basal margin. *S. radiatus*, Linn. (Genus *Siliqua*, Mégerlé; *Leguminaria*, Schum.)

B. More cylindric and destitute of the interior rib. *S. strigillatus*, Linn.

C. More elongated and subcylindric. *S. legumen*, Linn.

These species shew the connection of the two genera to be intimate; but there is certainly a great difference in habit, which, in conjunction with the notable characters of the rounded form of the muscular impressions, the distance of the hinge from the extremity, &c., in the present group, seem to justify its separation from *Solen*. Like the species of that genus, these reside in the sand on the sea shores, secluded from observation.

SOLECURTUS COSTATUS.—*Specific character.* Hinge nearly equidistant from the posterior termination of the shell and the middle of the hinge margin. Pl. 18.

Solen costatus, nobis. Journ. Acad. Nat. Sci. vol. 2, p. 315.

FULGUR.—Shell pyriform; spire very short; varices none; body whorl very large; aperture large, oval, extended towards the base into an elongate conic, open canal, which is entire at base; umbilicus none; epidermis deciduous; labium concave with a single fold or oblique groove near the origin of the canal and a slight calcareous deposition above; labrum simple: within having elevated striæ which do not revolve far within the shell, nor do they reach the edge of the labrum, but leave a smooth border; operculum horny.

Obs. This genus was formed by Montfort. Linné placed all the species with which he was acquainted in his great genus *Murex*. Bruguières, Lamarck and Blainville referred them to *Pyrula*, a genus with which they are certainly very closely allied, but from which they differ in having a fold on the labium, in not being vesicular and thin, in having elevated lines or striæ within the labrum, &c. Linné did not even perceive this alliance, if we may judge from the fact that he placed these shells with *Murex*, as above stated, whilst he referred the true *Pyrulæ* to his reservoir *Bulla*. We do not know what difference exists between the animals. Naturalists do not appear to know whether or not they are operculated, but we can affirm with certainty that the operculum exists in the present genus. When recent the surface of the shell is covered with a thin epidermis. It is always destitute of varices and of umbilicus, and bears the same relation to *Pyrula* that *Fasciolaria* does to *Fusus*. Indeed we would have more readily acquiesced in referring them to *Fasciolaria* than to *Pyrula*, although there exists but one fold on the columella, in place of wo or three.

The excluded ovaries consist of a long series of oval, parallel ollicles or disks of little thickness, attached by one side to a connecting string; each of these disks contains numerous young ones, of which the shell is very obvious and even tolerably firm in its consistence. Such ovaries are very abundant on our coast. They exhibit at length a rounded perforation in the edge of the follicle, opposite to the string, whence the young shells escape. All this this is very well represented by Lister in his Conchology, plates 879 and 881.

FULGUR PYRULÔIDES.—*Specific character.* Pale yellowish or white, with rufous, dilated lines, interrupted in the middle; suture canaliculated.

Seba. Mus. vol. 3. *pl.* 68, *fig.* 19, 20?
List. Conch., pl. 877.
Martini, Conch., 3, *t.* 661, *f.* 736, 737. (*Lam.*)
Encycl. Meth., pl. 443, *f.* 2, *a*, *b*. (*Lam.*)
Bulla ficus, var. b. Gmel.
Fulgur pyruloides, nob. Journ. Acad. Nat. Sci., vol. 2, *p.* 237.
Pyrula spirata, Lam. Anim. sans Vert., vol. 7, *p.* 142.
Bulla pyrum. Dillwyn, ed. Lister Conch., Index, p. 39.

Lamarck was unacquainted with the native country of his *spirata*, the description of which he published in August, 1822, which gives the priority to *pyruloides*, as this was published in July of the same year, twelve months after it had been read to the Academy. It inhabits our Southern coast, and I never found it so far North as New Jersey. Pl. 19.

[Am. Con., p. iii. Sept. 1831.]

ALASMODONTA.—Shell unattached, transverse, equivalved, inequilateral; cardinal teeth one in each valve, irregular, simple or biparted; lateral teeth none; muscular impressions two principal ones; compound ligament exterior; palleal line entire, uniting the two muscular impressions.

Obs. I formed this genus to receive several species of fluviatile bivalves, which the characters of *Unio* and *Anodonta* exclude. Lamarck placed some of the species in his genus *Unio*, notwithstanding his character of lateral teeth, " allongée, comprimée, se prolongeant sous le corselet."

Blainville, in his " Manuel," has placed the genus as a subgenus under *Anodonta*, with *Iridina* of Lamarck and *Dipsas* of Leach.

Cuvier in the first edition of his Règne Animal unites all the genera of this family in *Anodonta* and *Unio;* and is still followed in this arrangement by some other naturalists, upon the principle that inosculating species destroy genera. They appear to forget that the same principle would reduce those two genera to a unit, and would in fact eliminate a great portion of those groups, in all departments of natural science.

Four different names have been applied by as many writers, to designate this genus. Leach called it *Damaris;* another name, according to Swainson, was given by Dr. Turton; and a third, that of *Margaritaria** by Mr. Schumacher. To all these generic names the *A. margaritifera* of Linné was referred by their respective authors, who do not appear to have been acquainted with either of the several species which inhabit our waters.

Those who change the orthography of *Anodonta* to *Anodon*, will write the name of this genus *Alasmodon* for the same reason. One author writes it *Alasmidonta* and Blainville changes it to *Alasmisodonta*, without abbreviation.

But those who assume the task of rejecting genera in this family, in order to be consistent, must revert to the principles laid down by Ferussac in his " Essai d'une méthode Conchyliologique," published in 1807. He reduces all the Naïads to the genus *Unio*, and the remaining parts of his system, chiefly correspond with this view of the subject. Mr. Sowerby, in the Zool. Journal, 1824, has made the same proposition, though in his " Genera " he retains

* Essai d'un nouveaux système des habitations des Vers Testacoés, 1817. The priority of this date would lead me to adopt the name given by that author, did it not appear that the work was not published for several years after it was printed. It was not known to the naturalists of this country, France, Germany or England until the year 1822.

Anodonta, Iridina, and *Hyria,* as well as many genera in other families, which the same principles of arrangement would abolish. Ferussac, however, in his "Tableaux Syst.," 1822, has concluded to admit four of the genera; viz. *Anodonta, Hyria, Unio* and *Castalia.*

ALASMODONTA CONFRAGOSA.—Disks with short, oblique undulations, and tuberculated beaks.

Alasmodonta confragosa, nobis. Disseminator of Useful Knowledge, vol. 2, *p.* 339.

Desc. Shell transversely suboval, very dark or blackish; disk convex, with oblique, irregular, abbreviated undulations, not directed towards the beak; and numerous, more or less abbreviated, slightly elevated lines from the umbo, becoming obsolete towards the base, those before divaricating towards the hinge margin; beak with a groove and double series of three or four tubercles; lunule, or cavity of the hinge membranes somewhat arquated; within white, margined with opake whitish, or violaceous.

Obs. This species was first obtained by Mr. O. Evans in a side stream of the Wabash, called Fox river; several specimens have been since obtained, but it is rather rare. The teeth resemble *A. rugosa,* Barnes, but are much less prominent. On a passing glance it might almost be mistaken for *Unio plicatus,* nob.

The tuberculated beaks are somewhat like those of the figure 9, plate 248, of the Encyclopedie Methodique, but that is represented to have the lamelliform teeth. The largest individual I have seen measures three inches and a half long, by five and six-tenths broad and two and a half inches in convexity. In a particular, oblique, reflected light, the surface exhibits a tinge of dark green.

I have recently received specimens from Mr. Barabino of New Orleans, near which city he obtained them, and where they are probably not uncommon. He did not state the precise locality, but I presume they inhabit the sluggish waters in the rear of the city, and not in the Mississippi. Pl. 21.

UNIO PHASEOLUS, Hild.—*Specific character.* Umbo compressed; cardinal plate very thick; lateral tooth short; surface radiated; beaks simple.

Unio phaseolus, Hildreth. Journal of Science, vol. 14, *p.* 283. *Short and Eaton, Transylvania Journ. of Medicine, for February,* 1831.

Unio cuneatus, Var. Barnes. (*Note to Hildreth's essay.*)

Unio planulatus, Lea. Trans. American Philos. Soc. N. S., vol. 3, *pl.* 9, *p.* 13.

Desc. Shell transversely oblongovate, thick; surface yellowish brown, with several rather broad radii, which are often interrupted, by the larger lines of growth, into spots; disks and umbo compressed; beaks simple or not undulated; not elevated; cavity of the hinge membranes or lunule oval, acute; ligament not elevated; within white, somewhat grooved obtusely; cardinal plate very thick, with a considerable flattened space between the cardinal and lateral teeth; cardinal teeth rather small, direct; lateral teeth very short, oblique, and very thick; anterior smaller muscular impression immediately anterior to the tips of the lateral teeth.

Obs. A striking similarity exists between this shell and the *cuneatus* and *gibbosus* of Barnes, the latter of which, however, is somewhat more slender, the cardinal teeth larger, the lateral teeth longer, the beaks undulated.

In a note on Dr. Hildreth's description of *phaseolus*, Barnes says it is a "white variety of *cuneatus*;" and it must be confessed that a considerable resemblance exists between some of their varieties. But the latter species differs in the much less dilated cardinal plate; in having the anterior smaller muscular impression, situated immediately beneath the tip of the lamelliform teeth; in having the anterior lunule much more depressed, with slightly elevated lines crossing the wrinkles.

The young of a corresponding age, accurately resembles, in its outline, Barnes' figure of his *mucronatus*, but his description of *mucronatus* agrees better with *cuneatus* than with any other species, certainly much better than with *gibbosus*, inasmuch as it is stated to be "purplish on the margin, and whitish in the centre," whereas the latter is more commonly whitish on the margin than in the centre, and the "anterior lunule long, distinct, with a marginal furrow," of *mucronatus*, agrees with *cuneatus*, but not at all with *gibbosus*.

This species is found in plenty in the Wabash, and is probably also an inhabitant of most of the larger tributaries of the Ohio.

The branchial oviducts, when inflated with eggs, exhibit a series of tubes, which, when dried, appear granulated under the microscope; these tubes are dirty yellowish, with a few blackish spots near their tip; beyond these spots is a yellow band, the tip itself being bright sanguineous. Pl. 22. The exterior, dorsal and interior views of the shell, and the branchial oviducts.

UNIO TETRALASMUS.—*Specific character.* Transversely elongated; lateral teeth two in each valve.

Desc. Shell transversely oblong-elliptic; rather thin, moderately convex; beaks but little elevated, decorticated; hinge margin parallel to the basal margin, subrectilinear; posterior margin regularly rounded; anterior slope with two impressed lines; anterior margin declining in an oblique rectilinear line from the extremity of the hinge margin to the subrostrated tip; basal margin subrectilinear; cavity of the hinge membranes (lunule) very slender, obsolete; umbonial slope not prominent; within white, iridescent anteriorly and on the margin; numerous minute, slightly impressed, longitudinal lines; palleal impression not indented, curved beyond the anterior muscular impression; anterior accessory muscular impression very large, separate; cardinal teeth transversely long, slender, very oblique; lateral teeth distant from the cardinal teeth, two in each valve, equally prominent in the two valves.

Obs. For an opportunity to examine this species I am indebted to Mr. Lesueur, who obtained it in Bayou St. John, near New Orleans. It is readily distinguished from any other species. Pl. 23.

UNIO DEHISCENS.—*Specific character.* Anteriorly biemarginate; teeth obsolete.

Unio dehiscens, nobis. Disseminator of Useful Knowledge, vol. 2, *p.* 308.

Desc. Transversely much elongated, thin, rather compressed, polished, pale yellowish green, or brownish, radiate with somewhat interrupted green lines, which are more or less dilated and compound, and obsolete in the aged specimen; anteriorly gaping, and at the posterior inferior margin also gaping to the middle of the base; a slightly impressed line on the anterior hinge submargin passes to the anterior margin, which is emarginate both above and below the line, and subangulated at tip: posterior margin rounded, extending considerably beyond the beaks: umbo and beak not prominent, with slight undulations on the latter: primary teeth consisting of a slightly elevated, very obtuse angle in the right valve and obsolete sinus in the left for its reception: lateral teeth denoted by an impressed line; cavity of the umbo slight, but with a deep, obvious and large muscular impression immediately under the beak; more or less tinged with purple.

Obs. The anterior emarginations, above mentioned, are obvious in many species, but are more particularly remarkable in the present shell; they mark the situations of the tubes of the animal.

The form and arrangement of the teeth are very much like those of the *monodonta*, nob., but the outline and other characters of this shell, as expressed in the above description and exhibited in the plate, are widely different.

It is certainly an inosculating species between *Unio* and *Anodonta*, but traces of the primary and lamelliform teeth are, I believe, always discoverable. It is an inhabitant of the Wabash river, and is not uncommon.

The largest individual that has occurred, is in length one inch and three-tenths, and in breadth three inches and two-fifths; but the plate exhibits the usual magnitude. The cavity of the beaks is often more or less tinted with purple. Pl. 24.

SIGARETUS.—Shell ear shaped, univalve, spiral, depressed; aperture very large, entire, embracing a portion of the preceding volution, much wider than long; destitute of nacre: columella short, spiral: labrum simple: volutions two or three: muscular impressions two, distant: operculum none: a revolving slightly elevated line on the inner surface: spire lateral: periostraca none.

Obs. These are marine shells, inhabiting various parts of the globe. Like *Ovula*, *Oliva*, &c., the shell is included within the mantle of the animal. Of the few species yet discovered, Linnè considered one a *Helix*. Lamarck adopted the name of the genus from Adanson, and placed it in his family of *Macrostomes*, with *Stomatella*, *Stomatia* and *Haliotis*, distinguishing it from the others by being destitute of nacre. He says, it seems to have some relation to *Natica*; and indeed some similarity is exhibited by the *S. concavus* of that author, and an allied fossil species which Mr. Hoeninghaus sent me under the name of *canaliculatus*. But as those shells are external, or not enveloped in the mantle of the animal, the relation must be considered as of analogy rather than of affinity.

Cuvier, who examined the structure of the animal of a species of this genus, but we are not informed which, either by name or description, says, it is so much like that of a *Buccinum*, that "to make of the *Sigaretus* a *Buccinum*, it is only necessary that the whorls of the shell should be less unequal, and should be elongated into a more acute spire." The animal as delineated in his plate, or that part which is visible from above, consisting entirely of the expanse of the thick, fleshy mantle, is oval and convex. On the anterior margin, a little on the left, is a deep emargination, which is the extremity of an open canal beneath, originating above the neck in the branchial cavity, to which it conveys the water, and in which are two pectinated and vascular lamelliform branchiæ. The shell is entirely enclosed in the convexity of the mantle. The head is formed as in *Buccinum*. The tentacula are conic, with the eyes at their base. The vent is posterior to the canal and before the middle of the body. The foot much smaller than the mantle and also oval. The sexes are in separate individuals.

Blainville has formed a new genus under the name of *Cryptostoma*, for one or two East Indian species, the shells of which though more depressed, are altogether generically similar to *Sigaretus*, in which other naturalists place them; but the animal, agreeably to his description, differs in having a more elongated form, appendiculated tentacula and but one large branchial pecten.

SIGARETUS PERSPECTIVUS.—*Specific character*. Depressed; beneath, revolutions visible almost to the summit.

Desc. Shell oval, very much depressed, but little convex, with numerous, transverse, slightly undulated, sub-equidistant, impressed lines and longitudinal wrinkles; transverse lines obsolete beneath : spire not at all prominent, only a little convex : volutions about three : suture a simple impressed line : within, the slightly elevated line is more or less obvious, not reaching the margin of the labrum : revolution of the whorls visible almost to the summit.

Obs. This shell is abundant on the coast of New Jersey and farther south ; but I have never had an opportunity to examine the animal.

I have carefully compared many specimens with a shell sent me by Mr. G. B. Sowerby, under the name of *haliotoideus*, L., but which seems more accurately to correspond with the *leachii*, Blainville, as figured by Sowerby in his "Genera," and of which Blainville has formed his genus *Cryptostoma*. So striking is the resemblance that I have hesitated much to consider it a distinct species.

The chief differences appear to be, that the present species has more general convexity and the spire itself is slightly convex: beneath, the breadth is less considerable between the outer margin and the edge of the mouth, and the revolutions of the spire within are much more obvious. Pl. 25, upper and lower figures.

SIGARETUS MACULATUS.—*Specific character.* Shell with two maculated bands.

Desc. Shell oval, depressed, with very numerous, transverse, hardly undulated, subequidistant, impressed lines, and longitudinal wrinkles; the transverse lines are obsolete beneath; two bands of pale rufous spots, and a rufous band near the suture: spire hardly prominent, slightly convex; volutions about three; suture a simple impressed line: aperture very large.

Obs. Although very much depressed, this pretty species is more convex than the preceding, and the spire when viewed from the side is more distinct; the striæ also are more close set. It differs from all the species in having colored spotted bands, and within it has a slight pearly appearance. This species is found on the southern coast and is rare. Pl. 25, middle figures.

VENUS.—Shell equivalved, inequilateral, regular, closed, transverse or suborbicular; cardinal teeth three on each valve, approximate, anterior and posterior ones diverging from the summit; ligament exterior; muscular impressions two, not elongated, remote, connected by the submarginal impression, which is deeply sinuous before.

Obs. In this extensive genus are included some of the most beautiful of bivalve shells. Linnè referred to it species of the following genera: *Petricola, Venerupis, Sanguinolaria, Corbis, Lucina, Donax, Astarte, Cyrena, Cyprina, Megadesma, Cytherea, Venus* and *Venericardia.* Although those species have been since eliminated and more naturally distributed, yet in consequence of the great accessions from the zeal of modern observers, and owing to the considerable variation, both in sculpture and coloring, that many of them undergo, great difficulty and uncertainty often meet the conchologist in his endeavors to ascertain species, and more than usual caution is requisite in detemining any one to be new.

In general form and exterior appearance these shells are undistinguishable from *Cytherea,* but the hinge of the latter has the posterior cardinal tooth situated immediately under, and parallel to, the edge of the lunule in the right valve, and a recipient cavity in the left valve, similarly situated. *Cyprina* was separated, from the circumstance of having an anterior, lateral, remote tooth. *Venerupis* is very closely allied to *Venus;* but the cardinal teeth are parallel, and not divergent as in *Venus;* they have the habit of perforating and residing in limestone rocks. Sowerby has changed the name of *Venerupis* and united to it several transverse species of *Venus*, such as *papilionacea*, *literata*, &c., some of which, or perhaps all, might enter Schumacher's genus *Tapis*. Several other genera have been separated from the Linnæan *Venus*, such as *Calista* and *Arthemis* of Poli; *Arthemis*, *Loripes* and *Meretrix* of Ocken; *Orbiculus*, *Trigonia*, *Chione* and *Tapes* of Megerle, and others by Schumacher, but as we are unacquainted with the characters of several of these we cannot estimate their relative value, though we readily assent to the necessity of a reform in this numerous and somewhat artificial group.

The animal of *Venus* has the foot rather large and compre ssed; the mantle is undulated and furnished with a series of cirri; the tubes are moderately long and united; mouth small, semi-lunar; branchiæ not united, broad and short. Lamarck described eighty-eight recent species and six fossil ones, and Blainville states that Defrance announces forty fossil species.

One of the most useful of our shells, the Clam, (*V. mercenaria*, Linn.,) belongs to this genus, but Schumacher has separated it under the generic name of *Mercenaria*. It is the shell of which our aborigines, with much persevering labor, formed their wampum beads which they valued so highly, and which they strung together in the form of belts and other ornaments.

VENUS GRATA.—*Specific character*. Granulated with longitudinal and transverse striæ; whitish, with dotted rays of pale ferruginous and blackish; blackish oblique lines before.

Desc. Shell transversely suboval, convex, with very numerous, close set, longitudinal striæ; those on the anterior two-thirds of the shell have a slight appearance of folds, or as if each one originated beneath the one posterior to it in a somewhat imbricated manner; these striæ are granulated by very numerous transverse striæ, which are more obvious on the posterior third of the shell, and almost obsolete on the middle: color whitish, somewhat tinged with green towards the umbones, broadly radiated with very pale ferruginous and dusky purplish, with numerous fine and abbreviated lines of purple-black: anterior margin with transverse, oblique, purple black lines: posterior margin pale ferruginous: lunule dusky, bounded by an impressed line: umbones not very prominent: hinge margin nearly rectilinear, terminated anteriorly by an obtuse angle; in this part the edge of the left valve laps a little over and conceals the corresponding part of the edge of the right valve: ligament deeply seated: posterior margin rounded: lunule impressed, distinct by an impressed line: within, very broadly margined with violaceous; margin crenated: intermediate tooth emarginated at tip: anterior tooth of the left valve also emarginated.

Obs. This beautiful species was presented to me by the late Mr. Stephen Elliott of Charleston, S. Carolina, as an inhabitant of the west coast of Mexico. The colored lines on the anterior part of the shell, are somewhat like those of *V. geographica*, Gmel., but these lines have a bluish shade forwards, are more regular than in the figure of that species in the Encycl. Meth., and as a species is widely distinct.

I have an indistinct recollection of a figure resembling this species, but I cannot recall the work, for the purpose of comparing the characters. Pl. 26.

SCALARIA.—Shell turrited; volutions convex, gradually increasing in size to the aperture, with numerous, elevated, longitudinal ribs or varices; aperture nearly orbicular, slightly longer than broad; peristome continuous, reflected; operculum horny, spiral, thin.

Obs. A genus of very pretty shells, known by the name of Staircase shells by some collectors, and with respect to the nature of which, naturalists formerly differed much. Favanne and Gaulteri and others, believed them to be closely related to *Serpula;* and Rumphius placed them in his *Buccinum.* Such as were known to Linné he referred to *Turbo*, on account of the rotundity of the aperture. In this respect they certainly also resemble *Cyclostoma* and *Pupa;* but the elevated ribs distinguish them from the first, and the successive and regular increase in the size of the volutions separate them from such species of the latter, as have slight rib-like elevations. They seem also to approach some species of the genus *Rissoa* in the character of the ribs.

The largest and most beautiful species, the *scalaris*, *L.*, (to which Lamarck has since given a different name) was separated by Leach as the type of a new genus, to which he gave the name of *Aciona;* it is the "Wentletrap or royal staircase shell" of the English collectors, and *Scalata* of the French, belonging to the subdivision of this genus, which is distinguished by having the volutions separated, or only touching each other by the projecting ribs. This shell was very highly valued, and Leach mentions a specimen "which was purchased at a sale for twenty pounds; but it is now (1815) estimated as worth double that sum." Cubières says that in his time, a fine specimen of four French inches long by three inches at base, was worth six thousand livres. To the same division of the genus, it is said, about twelve species are referred.

Blainville, after Plancus and Muller, describes the animal to be spiral, with a short oval foot inserted under the neck; two tentacula, with filiform termination, supporting the eyes at the extremity of the inflated part; a proboscis?; a long canal at the anterior right margin of the respiratory cavity; sexes separate.

They are all inhabitants of the sea. Lamarck has characterized seven recent and five fossil species; but Defrance enumerates twelve fossil species.

Scalaria clathrus, Lin.—*Turbo clathrus, Linn. Gmel. &c.*
Scalaria communis, Lam.
Scalaria clathrus, Auct.

Desc. Variety *c.* Shell conic, turreted, imperforate, white, immaculate: whorls from six to eleven, touching each other only by the ribs, but with a very narrow interval: ribs nine to each volution, prominent, simple, a little oblique, somewhat recurved and with a more or less obvious, obtuse angle or shoulder above near the suture: aperture oval-orbicular; base a little angulated: labium distinct.

Length from three-fifths to nearly nine-tenths of an inch.

Obs. Inasmuch as the European specimens of *clathrus* in my collection are almost all colored, spotted or banded and destitute of any obvious angle or shoulder on the ribs near the suture, and the suture is somewhat more contracted, I was led to describe this as a distinct species under the name of *angulata;* but as the *clathrus* is often, and perhaps usually, destitute of color, and our specimens frequently occur without much appearance of the angle of the ribs, I have judged it prudent to place it as a variety of the *clathrus*, though I propose that it be separated under the above name. Lamarck describes a variety *b*, and although he quotes the true Linnæan name of *clathrus*, yet he has placed the species under a new name, which, agreeably to our principle relative to the exclusive right of priority of description, we cannot admit, notwithstanding the fact that the word *clathrus* may apply equally well to other species.

Our shell varies much in proportional diameter. The body whorl, I believe, never becomes so large as in some specimens of the European *clathrus*, neither does the whole shell ever become so long as in other transatlantic specimens. Pl. 27, two upper figures.

SCALARIA MULTISTRIATA.—*Specific character.* Interstitial spaces with very numerous, impressed, transverse lines.

Desc. Shell conic turreted, tapering to an actue apex, white, immaculate, imperforate: whorls about eight, in contact: costæ regular, simple, not reflected, equidistant, moderately elevated; spaces between the costæ with very numerous, approximate, equidistant, impressed lines: suture well impressed: body whorl with about sixteen costæ.

Obs. Like the preceding, this is an inhabitant of the southern coast, and is about half an inch in length. Mr. Elliott sent me a specimen from Charleston, South Carolina, and obtained two on the coast of Florida. It is readily distinguished from the preceding species, by the very numerous small lineations that exist in the spaces between the ribs, and at right angles with them. Pl. 27, lower right figure.

SCALARIA LINEATA.—*Specific character.* Costæ on the body whorl about eighteen: peristome very robust; body whorl with a raised line.

Scalaria lineata, nob. Journ. Acad. Nat. Sci. vol. 2, *p.* 242.

Obs.—This species is not uncommon on our southern coast. Its length is about half an inch. A variety occurs, of which the costæ are almost obsolete, and another in which each rib, particularly of the body-whorl, has an impressed line. The margin of the mouth is greatly thicker than the ribs. What I have called in the above description an *elevated line*, is, strictly speaking, the line of junction with the basal surface which is a little more elevated than the remaining surface of the volution, making a kind of step, and not in reality a simple elevated line. In my observations on this species, in the Journal above mentioned, I remarked that it "very much resembles the *clathratulus*, Montagu, but the lip is more robust and the basal portion of that part is more dilated." Pl. 27; lower left figure.

AMPHIDESMA.—Shell rounded or transversely somewhat oval, subinequilateral: hinge with one or two cardinal teeth, and having a lateral tooth each side, sometimes obsolete; a slender oblique fosset originating immediately under the beak and passing anteriorly: ligament divided into two parts, of which the true ligament is exterior and very short, and the cartilage portion is interior, affixed in the oblique fosset: muscular impressions two, remote, not elongated: parallel line with a much dilated and profound sinus.

Obs.—The characters of this genus are very distinct and easily recognized from all those that have no part of the ligament internal. Lamarck first distinguished it by the name of *Donacilla*, which I think ought to be retained on the principle of priority, and that of *Amphidesma*, that he afterwards applied to it, ought to be rejected. He has associated it, in the same small group, with *Ungulina* and *Solemya*, from both of which it may be known by its much dilated and profound sinus of the palleal line. Other genera of his family of *Mactraceæ* have divided ligaments, particularly *Mactra*, with which, in fact, Linné arranged the species; but their cardinal fosset is more direct, dilated and deltoid, whilst that of *Amphidesma* is nearly parallel with the edge, and fusiform. *Lutraria* is entirely destitute of lateral teeth, the valves gape and the ligament is fixed in a deltoid cavity. Blainville unites *Amphidesma* with *Lucina* and with *Fimbria*, Megerle, or *Corbis*, Cuv. But *Corbis* has lateral teeth, an exterior ligament, though deeply seated; and the parallel line is entire, and the posterior muscular impression is elongated.

AMPHIDESMA TRANSVERSUM.—*Specific character.* Transversely short oval; hinge nearly central.

Desc.—Shell transversely short oval, nearly equilateral, compressed, a little gaping: anterior and posterior margins subequally rounded, the latter somewhat more obtusely so: basal margin regularly rounded, without any undulation before: apex obtuse, but little prominent: cardinal teeth two: fosset dilated fusiform, abruptly very narrow at the beaks: lateral teeth none: posterior muscular impression very slender, and elongated.

This species is more transverse than usual in this genus; it is altogether destitute of lateral teeth, and the posterior muscular impression is remarkably slender. It is superior in point of size to either the *orbiculatum* or *radiatum*, nob., though proportionally somewhat thinner. I obtained a specimen on the coast of Georgia that is somewhat worn; its color is whitish, a little tinged with yellowish. Pl. 28; middle figures.

AMPHIDESMA ÆQUALE.—*Specific character.* Left valve with remote grooves instead of lateral teeth.

Amphidesma æquale, nobis. Jour. Acad. Nat. Sci., vol. 2, *p.* 307.

Obs.—This is allied to *A. tenue* and *Boysii*, Montagu, of the coast of England, of which, however, I have not any good description or specimen to compare, and it may possibly prove to be the same with one of these, when comparison shall be made.

Since my quoted description was given, many specimens have been found on the coast of Charleston, for which I am indebted to the late Mr. Stephen Elliott.

It belongs to the genus *Abra* of Leach. Pl. 28; four exterior figures.

FUSUS.—Shell univalve, spiral, fusiform, canaliculated at base, covered with an epidermis, and destitute of varices; spire elevated; aperture oval; columella simple; labrum on its edge simple; operculum horny, subconcentric.

Obs.—This genus was separated from the Linnæan *Murex* by Bruguières, who, however, included *Pyrula, Fasciolaria, Fulgur*, and *Pleurotoma*, which have since been withdrawn from it by Lamarck and Montfort. The latter author distinguished another genus by the name of *Latirus*, for the umbilicated species. Notwithstanding these improvements, it is still acknowledged to be an artificial assemblage, and more divisions must therefore be made. Lamarck places the genus in his family of *Canalifères;* from all the genera of which it is distinguished by very obvious characters, excepting *Pyrula*, which, however, consists of thin, more or less cancellate shells, (I mean the true *Pyrulæ*,) with a very short spire, and pyriform, having the greatest diameter above the middle. But as *Buccinum*, in another family, is at present constituted, *Fusus* is allied artificially even to that genus.

The species are numerous, and are marine. Lamarck enumerates thirty-seven recent and thirty-six fossil species; but we are informed that Defrance makes the number of fossil species amount to sixty-six.

FUSUS CORNEUS.—*Specific character.* Fusiform, unarmed, transversely striated; beak rather short, recurved.

Murex corneus. Linn. Syst. Nat. p. 1224. *Penant, Zool. vol.* 4, *p.* 124, *pl.* 76. *Donovan, Nat. Hist. Brit. Shells, vol.* 2, *pl.* 38. *Mont. Test. Brit. p.* 158. (*Dillwyn.*)

Fusus islandicus. Martini Conch. vol. 4, *p.* 159, *pl.* 141, (*Dillwyn.*)

Murex islandicus. Gmel, Schrebers, (*Dillwyn*) *&c.—Lister Conch. pl.* 913, *fig.* 5.

Desc.—Shell turrited-fusiform; the greatest dilatation a little below the middle; unarmed: whorls about eight, convex, transversely striated and longitudinally a little wrinkled: epidermis pale brownish, deciduous: spire tapering, nearly as long as the aperture and beak, terminating obtusely: labrum simple, smooth within: columella naked, simple: beak of moderate length, slightly arquated and a little recurved.

This is one of the several species of shells, which inhabit the northern shores of America, in common with the coast of Europe, and particularly that of Great Britain, as well as Iceland. The late Mr. Z. Collins, a zealous and enlightened naturalist, presented to me an individual which he found on the coast of New Jersey. The color is whitish, but when living, it is covered with a brownish deciduous epidermis.

Although the name *icelandicus* has been adopted by Lamarck and other distinguished conchologists, yet with Pennant, Dillwyn and others, I have retained the Linnæan name, for the all-sufficient reason, that it has the priority; whilst, at the same time, it has the advantage of being preferable in itself, as the shell is not limited to Iceland.

The resemblance between this shell and the *antiquus*, L., has been noticed by many writers; but that species is much larger, more robust, the aperture more dilated, and the striæ much more crowded. Lamarck and others say that they may be distinguished by the rectilinear beak of the *antiquus*. This also is a good character, but in my cabinet is a large and fine specimen of the latter, of which the beak is as much recurved as in the present species. Pl. 29; upper and lower figures.

FUSUS CINEREUS.—*Specific character.* With elevated costæ; and transverse, filiform lines.

Fusus cinereus, nob. Journ. Acad. Nat. Sci., vol. 2, *p.* 236.

Obs.—This species is common in the estuaries of the eastern shores of Maryland and New Jersey. It has considerable resemblance to two figures in Lister's Hist. Conch. pl. 924, f. 16, *b*, and pl. 939, f. 34, *a*. The first of which is considered an uncertain figure, and the latter is said by Dillwyn to be the *undatus*, and is interrogatively referred to by Lamarck. Our shell certainly approaches the genus *Purpura* in habit, but it cannot enter with Lamarck's characters. Pl. 29; two middle figures.

PALUDINA.—*Obs.* This genus may be distinguished from *Melania* by the construction of the operculum, which has no other than concentric lines of growth, whilst that of *Melania* has the lines of accretion spirally radiate.

The name of the genus was adopted by Lamark from Bruguière, but Montfort applied to it the name of *Viviparus*, which is retained by Blainville in his plate, though in the text he adopts that of *Paludina*.

PALUDINA PONDEROSA.—*Specific character.* Shell thick; labrum more prominent towards the base.

Paludina ponderosa, nob. Journ. Acad. Nat. Sci. vol. 2, *p.* 173.

Obs.—This shell is common in many parts of the Ohio as well as its tributaries. In its full grown state it is very thick and ponderous, enlarging so much in its body whorl, as to appear very different from the young shell. In the early stages of growth it resembles *P. decisa*, nob., from which indeed the back view would hardly distinguish it; but a sufficiently distinctive character resides in the lower part of the labium, which in the *decisa* is not obviously produced, whereas, in the present species it is considerably advanced, as in many species of *Melania*, to which genus it is closely related. Pl. 30, fig. 1

PALUDINA SUBPURPUREA.—*Specific character.* Penultimate longer than the other volutions.

Paludina subpurpurea. Disseminator of Useful Knowledge, vol. 2, *p.* 245.

Desc. Shell subglobular oval, not remarkably thickened; spire longer than the aperture, entire at the tip: whorls five, slightly wrinkled across, rounded but not very convex; penultimate volution somewhat elongated: suture impressed: aperture ovate-orbicular, less than half the length of the shell: labium with calcareous deposite: animal very pale bluish, with minute yellow points, particularly on the rostrum, tentacula, and prominent respiratory tube, which is as long as the tentacula: eyes on the exterior side of the tentacula, near the middle of their length: the anterior portion of the foot is very short.

Obs. This species was first found by Mr. Lesueur and Dr. Troost, in Fox river of the Wabash. In the young state the figure is subglobose, and the aperture, although it hardly differs in form from that of the adult, is yet longer than the spire. They become proportionally more elongated as they advance in age, and the form, therefore, of the adult, is so different from that of the young or half grown, that in these states it may, very readily, be mistaken for a widely distinct species.

The color of the shell is variable. In some it is pale horn, more tinged with yellowish than with green; in others are traces of obsolete purplish bands, in many specimens the whole shell is reddish-purple, more or less obscure in different individuals.

In the autumn it is frequently found between the valves of dead *Unios*, in which it enters perhaps to hybernate. The species is certainly allied to the *vivipara*, but it cannot well be mistaken for it, as it is much less dilated, the volutions less convex; the penultimate volution is much longer in proportion to the length of the body whorl, and the umbilicus is obsolete. Plate 30, f. 2.

PALUDINA INTERTEXTA.—*Specific character.* Shell with numerous, minute, transverse, epidermal lines.

Paludina intertexta, nob. Disseminator of Useful Knowledge, vol. 2, *p.* 244.

Obs. In good specimens two or three obsolete, pale bands are visible by transmitted light. Plate 30, f. 3, adult shell; f. 4, old specimen; A, the operculum.

[Am. Con., p. iv., March, 1832.]

LIMNEUS.—Shell oblong, ovate, oval, conic or turrited, thin, smooth; spire prominent, more or less elongated; aperture more or less dilated, longitudinal, entire; columella at its superior part or junction with the labium entering the aperture by a very oblique fold or undulation; labrum acutely edged; operculum none.

"Animal oval, more or less spiral; margin of the mantle thickened on the neck; foot large, oval; head with two triangular, compressed, earshaped tentacula: eyes sessile, at the inner base of the tentacula; mouth with two lateral appendices, and armed with a superior tooth; orifice of the pulmonary cavity on the right, and bordered by an appendage which can be folded in gutter; orifice of the reproductive organs distant; that of the oviduct at the entrance of the pulmonary cavity; that of the male organ under the right tentacula."—(Blainville.)

Obs. A numerous genus of fresh water shells, inhabiting almost every part of the globe. The species known to Linné were placed in his great reservoir *Helix;* in which he has been followed by many of the English Conchologists, even of late years. Bruguières, eminent for his useful reform in this science, separated it from that genus, but did not distinguish it from his *Bulimus;* thus uniting the differently organized animals of land and water in one group. It is very true that some species of these two natural genera resemble each other in the form of the shell, but they may always be distinguished by the fold of the columella in the present genus. Lamarck, aware that the animals were quite different in organization, and that the one has two tentacula and the other four, that one lives only in the water and the other altogether on land, placed them in different families, and formed a separate genus (as Muller and others had already done) under the above name, which is now almost universally adopted for the present aquatic group. The shell resembles *Succinea,* which, however, is destitute of the fold of the columella, and its animal has four tentacula. But of all the adopted genera, it is almost intimately related to *Physa;* and Sowerby, in his "Genera," has reunited the two groups. The peculiar fold of the columella exists in both, but the animal of *Physa* has the mantle remarkably dilated, so as to extend over more or less of the exterior surface of the shell, and is digitated on its margin, and the tentacula, which are short and compressed in *Limneus*, are longer and almost filiform in the *Physæ*. The shell also of the latter may be distinguished by being heterostrophe. For these reasons we agree with Draparnaud and most modern conchologists in separating *Physa* as a genus. It would seem also proper to separate *Aplexa* of Fleming, the animal of which is destitute of a dilated mantle, though the shell itself resembles that of *Physa*. *Mixas* of Leach may also, perhaps, be separated from *Limneus;* it was formed for the *L. glutinosus*, Drap., which is a fragile, vesicular shell, the spire hardly elevated, dextral, and the mantle of the animal is reflected.

These shells are abundant in most of our lakes and ponds, as well as in the rivers, east of the Alleghany Mountains. In our Western streams they are less frequent, and even in some of them are of rather rare occurrence. As the animal can only respire air unmixed with water, it is under the necessity of residing near the surface or shore to obtain it. Which, as its motions are slow, it cannot do in rivers that are subject to very great, sudden and long continued changes in depth, as is remarkably the case with our Western streams. In order to take in a supply of air the respiratory orifice is opened at the surface with an audible snapping sound, like that produced by the resilience of the nib of a pen.

Like the animals of some other shells it is capable of sustaining itself at the surface of the water in a reversed position, the shell being downward, and thus it can glide along to a considerable distance, by a slow movement. It does not appear to be capable of rising from a depth to the surface voluntarily; but it gradually reverses its position from a supporting body that meets the surface, or that approaches it within reaching distance.

Lamarck has described only twelve recent species, but many more have been since made known and several fossil species have also been described.

LIMNEUS UMBROSUS.—*Limneus elongatus, nob. Journ. Acad. Nat. Sci., vol.* 2, *p.* 167.

Obs. It inhabits in considerable numbers the ponds and tranquil waters of the Missouri, in the vicinity of Council Bluff, and Bigsby obtained specimens in Rainy lake and Seine river of Upper Canada.

I am under the necessity of changing the name which I first applied to this shell, that of *elongatus* being preoccupied by Draparnaud for a very different species.

The fold of the columella is much less profound than that of *L. palustris*, L., which it resembles. Pl. 31, fig. 1.

LIMNEUS RELEXUS.—*Limneus reflexus, nob. Journ. Acad. Nat. Sci., vol.* 2, *p.* 168.

Pl. 31, fig. 2.

LIMNEUS ELODES.—*Limneus elodes, nob. Journ. Acad. Nat. Sci., vol.* 2, *p.* 169.

Limneus palustris, L.?

Obs. The fold of the columella is much more profound than that of *umbrosus*. Pl. 31, fig. 3.

UNIO VENTRICOSUS, Barnes.—*Specific character.* Shell large, thick, triangularly ovate, convex; umbones large, round, prominent: beaks recurved; cavity capacious.

Unio ventricosus, Barnes. Silliman's Journal, vol. 6, *No.* 2, *p.* 267, *pl.* 13, *fig.* 14, *a, b, c.*

Unio ovatus, var. b, Lam. Anim. Sans. Vertebr., vol. 6, *p.* 75.

Unio occidens? Lea. Trans. Amer. Philos. Soc., New Series, vol. 3.

Desc. "Shell with the anterior side very broad, subtruncate; posterior side rapidly narrowed, subangulated; disks very convex; umbones large, round, elevated; beaks recurved over the ligament; ligament large and prominent, passing under the beaks; anterior lunule depressed at the margin, fuscous, broad heart-shaped, longitudinally waved; hinge margin depressed between the beaks; posterior slope carinate; epidermis yellowish-olive, becoming chestnut-brown on the umbones; rayed with green, more conspicuous in young specimens; in old ones the dark chestnut-brown covers the whole and conceals the rays; surface smooth and shining, reflecting the face of the observer; young shells are splendent, having a much stronger lustre on the outside than on the inside; cardinal teeth broad, prominent and obliquely flattened; lateral teeth broad, elevated, and terminating abruptly before; cicatrices large; cavity of the beaks unusually large; naker pearly white; surface smooth, but not highly polished."

Obs. I quote the above description from Barnes' very useful essay "On the genera *Unio* and *Alasmodonta*," in which this species was first distinguished from the *U. ovatus*, nob., to which it is very closely allied, and appears to be absolutely connected by a gradual transition of intermediate varieties. The most striking difference seems to be the more depressed anterior slope of the *ovatus*. Some old specimens and varieties are transversely more elongated, as is represented in Barnes' figure *c*. The color also is more or less yellow, radiated with green, or tinged with reddish brown, particularly on the umbo, and sometimes extending over the whole surface, almost obliterating the rays. On the inner anterior side, some specimens are beautifully tinted with a pink color, but this is not very common; they are generally white. It is very common in our western waters. The *U. occidens* of Lea may perhaps be *U. ventricosus, var. b,* Barnes. Pl. 32.

UNIO INTERRUPTUS.—*Specific character.* An elevated umbonial slope, separating folds of the disk from folds of the anterior margin.

Unio interruptus, nob. Transylvania Journal, vol. 4, *p.* 525.

Desc. Shell transversely oblong oval or subrhomboidal, blackish brown; an elevated rib extends from the apex to the anterior basal angle along the umbonial slope; anterior half of the disk with somewhat oblique undulations extending nearly to the umbonial rib; anterior to the umbonial rib are several arquated undulations, which do not reach the edge of the shell, and are cut by an impressed line which is nearly parallel to the rib; umbo compressed; beaks not elevated, deeply eroded; posterior margin very short, rounded; ligament margin rectilinear, the anterior angle elevated, obtuse; anterior slope very oblique; base rectilinear, parallel to the ligament margin; anterior basal angle somewhat rostrated; cavity of the hinge membranes (or excavated lunule) fusiform; within purplish, iridescent; cardinal teeth direct, deeply granulated and lineated over their whole surface; lateral teeth entire; posterior cicatrices rough, the smaller one orbicular; anterior edge blackish.

Obs. The species to which this makes the nearest approach, is undoubtedly the *undulatus*, Barnes; but it is more transverse, more oblique anteriorly; the edges of the hinge margin and of the anterior slope are undulated, the umbonial slope is elevated into a distinct separating rib; and it is of a fine livid purple color within. The eroded surface of the umbones is perlaceous, iridescent, and at the apices it exhibits a dull waxen yellow surface.

For this interesting species I am indebted to Mr. Joseph Barabino of New Orleans, who informs me that it inhabits Bayou Teche, in the parish of St. Mary, Louisiana. Pl. 33.

UNIO GLEBULUS.—*Specific character.* Oval orbicular; lateral teeth remote, very short, granulated.

U. glebulus, nob. Transylvania Journal, vol. 4, *p.* 526.

Desc. Shell transversely oval orbicular, sometimes subovate, very convex, dark brownish: umbones not elevated above the general curvature: beaks not prominent, (much eroded, exposing a wax yellow surface:) hinge and basal margins correspondingly arquated; destitute of any prominent angle: anterior and posterior margins almost equally arquated; the former extending a little with age into a more or less obtuse angle at the extremity of the umbonial slope: umbonial slope slightly elevated: lunule not dilated: within a little tinted with rosaceous: cardinal teeth deeply and approximately granulated and sulcated: lateral teeth remote from the cardinal teeth, remarkably granulated; length hardly greater than their distance from the cardinal teeth: posterior accessory cicatrix small and approximate.

Obs. The transverse simple rotundity of this shell, combined with the much sulcated cardinal teeth and the remote, short lateral teeth, readily distinguish it. Several specimens were sent to me by Mr. Barabino, as inhabiting the same locality with the preceding. Pl. 34.

UNIO DECLIVIS.—*Specific character.* Anterior margin rectilinearly and obliquely truncate.

Unio declivis, nob. Transylvania Journal, vol. 4, *p.* 527.

Desc. Shell transverse, moderately thick; posterior margin short and obtusely rounded: beaks hardly elevated: hinge margin rather elevated and compressed, angulated at tip: anterior margin rectilinear, descending obliquely forward, to a prominent rostrum of the anterior basal margin at the extremity of the umbonial slope: umbonial slope not elevated above the curvature of the disk, but is bounded on its anterior side by two slightly impressed lines: basal margin arquated: surface deeply wrinkled: within tinged with purplish: cardinal teeth oblique: lateral teeth distant from the cardinal teeth, rectilinear, oblique with respect to the base.

Obs. Several specimens were sent to me by Mr. Barabino, who informs me that they were found with the preceding by his friend Mr. Janin in the Bayou Teche.

It resembles *purpureus*, nob., but in that species the cardinal teeth are direct, and a remarkable feature is exhibited by this shell in its anterior rectilinear declivity, terminating below the anterior middle in a kind of rostrum or prominent angle, which may be compared to that of *nasutus*, N., excepting that it is nearly on a line with the base. I have not seen any variety of either of those species that could be mistaken for this. The beaks and umbones in my specimens are very much eroded, exposing a wax colored surface. Pl. 35.

ARCA.—Shell transverse, more or less elongated, and oblique; anteriorly subrhomboidal, inequilateral, subequivalve; summits remote; hinge rectilinear or slightly curved and furnished with a series of numerous, vertical inserting teeth, which decrease in size from the extremities to the centre; two muscular impressions, remote, connected by a simple parallel line; ligament broad, extending both before and behind the summits, and expanding over the rhomboidal surface beneath the summits; animal with a byssus.

Obs. Linné included in his genus *Arca*, not only the species of which it is at present constituted, but those also which have been since distinguished by the names of *Pectunculus* and *Nucula*. Gmelin added to it his *A. cucullus*, afterwards separated by Lamarck under the generic name of *Cucullœa*.

As respects *Nucula* it appears that the relation to *Arca* is rather one of analogy than of affinity, and it is possible that Turton may be right in separating it entirely from the *Arcaceæ*, with which its numerous teeth bear some resemblance; but the propriety of placing it in the family of *Mactraceæ*, only by the character of the internal ligament, seems to be questionable.

Cucullœa corresponds with the present genus in its general appearance, and we know of no other difference than that exhibited by the teeth, which are less regular, and those at each extremity of the series are transversely elongated.

Pectunculus is a closely related genus, differing chiefly by the arquated series of teeth; the general orbicular form, and by the valves closing completely so as to prevent the passage of a byssus.

Ferussac in his Tabl. Syst., places *Trigonia* in this family; but the teeth are dissimilar, and the animal is unknown.

The *Arcæ* are marine shells, and, as Lamarck observes, some of the species have one of the valves extending beyond the other on the basal edge. Some are covered by a kind of hairy epidermis. Blainville says, that the animal has the body thick, of a somewhat variable form; abdomen provided with a pedunculated, compressed foot longitudinally divided; mantle with a simple range of cirri, and a little elongated before; the tentacula are very small and very slender.

[ARCA STAMINEA, pl. 36, fig. 2, and ARCA LIENOSA, pl. 36, fig. 1, being fossil species, I have omitted the descriptions.—ED.]

SIPHONARIA.—Shell oval or subovate, patelliform; apex nearer one side and one end, curved in a direction opposite to an angle on the basal edge; within, an indentation dividing the muscular impression and extending to the angle of the lateral edge.

Obs. Adanson was the first to detect the differences between a species of this genus, the *S. mouretus*, Bl., and *Patella* which it resembles in general form. He was succeeded by Blainville, but it is to Sowerby that we are indebted for the genus and name which are now adopted. Gray formed a genus for the *Gadin* of Adanson, which, however, is referred by other authors to the present group; Adanson did not describe its animal; but it is evident from his figure that the two sides of the shell are not symmetrical.

It resembles *Patella*, but the shell is distinguished by an unsymmetrical angle on one side, (sometimes obsolete,) denoting the position beneath of the termination of a syphon or respiratory organ of the animal of which the trace remains. On the outer surface, corresponding with this mark, is generally an elevation or rib, extending from the summit to the edge, but it is sometimes obsolete.

Blainville gives the following characters of the animal: body oval subdepressed; head subdivided in two equal lobes; tentacula and eyes indistinct; margin of the mantle crenulated and extending beyond a suborbicular foot as in the *Patellas*, branchial cavity transverse, open a little before the middle of the right side and provided in that part with a fleshy lobe, of a square form, situated in the sinus between the mantle and the foot; retractor muscle of the foot, divided into two parts, of which the posterior is much the larger, arquated; the other very small, before the branchial orifice.

Several species are known, attaching themselves to rocks and other fixed bodies.

SIPHONARIA ALTERNATA.—*Patella alternata, nob. Jour. Acad. Nat. Sc. vol.* 5, *p.* 215.

Obs. This is a small species, and the slight irregularity in the curvature of the lateral edge, exhibits the unequivocal characters of this genus. Pl. 38.

BULLINA.—Shell cylindrical-oval, convolute, imperforate; spire elevated, short; aperture longitudinal, elongated, much narrowed above; labrum simple, gradually much more prominent in the middle than at the extremities, meeting the preceding volution with a deeply re-entering angle; at base widely and regularly rounded; columella with a slight fold.

Obs. Blainville quotes Ferussac for this genus, which, perhaps inadvertently, he calls *Buline*, with one l, instead of *Bullina* as the latter author writes the word. He has, however, considerably limited the group by assigning to it the character of " fortement involvées, spire visible et saillante á l'exterieur; l'overture très étroite en arriére," which excludes some of the species comprehended by Ferussac. He also places it as a subgenus under *Bulla*, with " la Bulle, la Jonkaire," of Basterot, as its type. The animal differs from those of the genera *Bulla*, *Scaphander* and *Atys*, by having two distinct tentacula, and from *Bullea* by being included within the shell. The shell differs by its prominent spire, which in those genera, when it exists at all, is umbilicated.

In its general form and habit it has much resemblance to *Volvaria;* but the shells of that genus are emarginate at base.

BULLINA CANALICULATA.—*Volvaria canaliculata, nob. Jour. Acad. Nat. Sc. vol.* 5, *p.* 211.

Obs. This genus has been constructed subsequently to the publication of my description of the above species.

In comparison with a fossil shell of Dax, sent to me by Mr. Hoeninghaus of Crefeld under the name of *B. lajonkeiriana*, Baster., before mentioned, it is a little larger, and evidently different in having the shoulder grooved; whereas in that species the shoulder is acute and the suture is profoundly impressed. Pl. 39.

CARDITA.—Shell equivalved, inequilateral, thick, suborbicular, free, regular, ribbed, the margin crenate; epidermis distinct; hinge of two teeth, one of which is short, direct, and the other oblique, elongated in one valve, and in the other valve, is a large cardinal recipient cavity with an oblique tooth on each side of it, nearly parallel with the margin; ligament subexterior; two obvious muscular impressions united by an arquated, entire palleal line.

Obs. Poli informs us, that the animal resembles that of *Anodonta* and *Unio;* and accordingly Blainville places the genus next to that group with *Venericardia* and *Cypricardia* as subgenera; both of which Lamarck had separated from Bruguière's genus *Cardita.*

Venericardia is much like the present genus, with which Sowerby unites it, and is chiefly distinguished by the teeth being all oblique and directed towards one side. *Cypricardia* is also very similar; it is remarkably inequilateral and has three teeth in each valve. Many of the species of *Cardita* resemble *Cardium* on their exterior surface, but the insulated lateral teeth of the latter are an obvious distinction. The three genera are certainly very closely allied in nature.

Some changes will undoubtedly be required in this genus. It is not now to be admitted that the *C. concamerata,* Brug., can remain in the same genus with the species represented in our plate. Particularly as the remarkable chamber which exists in that shell seems to be devoted to a purpose altogether peculiar. On this subject the late ingenious Miller wrote me as follows: "You have probably seen an account of the interesting discovery of the use of the conic chamber or pouch in *Chama concamerata;* almost immediately after the statement was published, I received specimens from the Cape, that not only shew the eggs, but also minute shells, in the pouch."

Some slight approach towards a similar form may be found in the *Jeson* of Adanson and in the *C. rufescens,* Lam., and perhaps even in the *C. calyculata,* L., and C. *crassa,* Lam., which are included in the subgenus that Blainville named *Mytilicardia;* though it is hardly probable that they can enter into the same group with the *concamerata.*

Lamarck has described twenty-five species, of which three are fossil.

CARDITA TRIDENTATA.—*Venericardia tridentata, nob. Jour. Acad. Nat. Sci. vol.* 5, *p.* 216.

Obs. The large recipient cavity of the hinge of the right valve is somewhat similar, though wider in proportion, to that of the corresponding valve of *Cypricardia modiolaris,* a very entire specimen of which was sent to me by Mr. Hoeninghaus. Plate 40.

[On page 4 of cover of Am. Con. p. iv.]

NOTICE.—In the last No. I remarked that the *Alasmodonta confragosa*, nob., was found by Mr. Barabino near the city of New Orleans; this is an error altogether my own, and which I thank that gentleman for enabling me to correct. He obtained his specimens from Bayou Teche in the Parish of St. Mary, Louisiana, about two hundred miles N. N. W. from New Orleans. I did not suppose they were found in the Mississippi, and my interesting correspondent says, "I have not yet discovered any bivalves in the Mississippi, (near New Orleans), although I have tried two summers successively, with an instrument made for that purpose."

The *Ampularia urceus, L.* (*rugosa*, Lam.) is stated in the books to inhabit the Mississippi river; but I have never been so fortunate as to find it, or to gain any information relative to it there. Mr. O. Evans did me the favor to make enquiry at various places on that river, and to exhibit, as somewhat similar, a colored plate of the *A. globosa*, Swains., to persons from whom information might be expected, and amongst others to some Indians, who in general are known to be accurate observers; but no one has seen any similar shell in the waters of the Mississippi. I am therefore much inclined to believe that the species is a native of some of the more southern rivers, probably those of Texas. Any information in relation to it, or specimens of the shell, will be very acceptable.

[Am. Con., p. v. Aug. 1832.]

UNIO LAPILLUS.—*Specific character.* Very small, thick, radiated; teeth very thick.

U. lapillus, nob. Transylvania Journal of Medicine. Vol. 4, *p.* 528.

Desc. Shell transversely suboval, thick, obscure yellowish, with very numerous dark green radiating lines: posterior margin not very short, rounded: beaks but little elevated, simple: lunule fusiform, very obvious: hinge margin and anterior margin a little depressed, declining gradually in an arquated line: anterior basal margin rounded: basal margin nearly rectilinear in the middle: within pearly white; cardinal teeth direct, thick; lateral teeth thick, oblique with respect to the base: cicatrices very deep and rounded: cavity of the beaks almost obliterated, with a series of small cicatrices, extending downwards and backwards.

Obs. The robust teeth and the thickness of the whole shell, have induced many, and myself amongst the number, to consider this shell as the young of *gibbosus*, Barnes; but a very slight examination serves to show that it is very distinct. The young of that species is always much more elongated transversely, not so thick, with the beaks much undulated, and the series of small cicatrices in the cavity of the beaks is parallel to the hinge margin. As respects magnitude it approaches *parvus*, Barnes, which, however, has the beaks undulated, is rather thin, with oblique, small, cardinal teeth. Plate 41.

UNIO CAMPTODON.—*Specific character.* Beaks distinct from the posterior margin; lamelliform teeth arquated at tip.

Desc. Shell moderately thin, transversely oblong-oval, a little compressed, dark brownish, or blackish; beaks with regular small undulations, behind the middle but remote from the posterior edge, but little prominent; ligament slope somewhat compressed, with two distinct compressed lines; umbonial slope not elevated above the level of the disk; anterior margin a little prominent towards the base and rounded; lunule large; posterior margin prominent, extending far behind the beaks and rounded; base a little contracted in the middle; within milk white; teeth, a single rather. long, oblique, undivided primary tooth in each valve; lateral teeth rather slender, towards the tip a little arquated.

Obs. This interesting, new shell was sent to me by Mr. Barabino, who discovered it opposite to New Orleans in ponds. An exterior view of the shell would not immediately distinguish it from *Alasmodonta edentula*, nob., but the inner surface is quite different, and the armature of teeth separates them generically. Pl. 42.

UNIO LUGUBRIS.—*Desc.* Shell transversely subovate, inflated, dark brownish, wrinkled; umbones prominent; beaks not very prominent, eroded; ligament margin slightly arquated; ligament more or less concealed; anterior margin very widely rounded, sometimes truncate or even subemarginate; posterior margin rather prominent, but very short; base often a little contracted in the middle; within pale lilac; cardinal teeth oblique, compressed, denticulated; lamelliform teeth slightly arquated, granulated and striated at tip; posterior accessory cicatrix rounded, rather deep; anterior margin somewhat iridescent.

Unio ater, Lea. Trans. Am. Phil. Soc., vol. 3, *pl.* 7, *New Series.*

Obs. I received several specimens of this shell from Mr. Barabino, who obtained them from Bayou Teche, Parish of St. Mary, Louisiana. It seem to be intermediate, and almost connected by means of varieties, to *U. cariosus*, nob., and *ventricosus*, Barnes; like those species it has the posterior side prominent and very short, the anterior margin often truncate and the primary teeth often double in both valves; but, however close this alliance may be, it can be distinguished by its somewhat different habit. It is differently colored, less cylindrical than *cariosus*, and proportionally longer and more cylindrical than *ventricosus*.

In the young state the ligament margin appears to be coalite, and that of the older shell retains this union on its anterior portion.

The name *ater* is preoccupied by Nilsson for a very distinct species. Pl. 43.

CREPIDULA.—Shell free, univalve, irregular, ovate or oblong, convex, somewhat patelliform, with an epidermis; spire very short or obsolete, apex obvious, obliquely inclined, towards the margin: within horizontally divided about half the length by a diaphragm: muscular impression lunate.

Animal more or less depressed, oval, curved in the posterior part; mantle very thin, without marginal tentacula; foot not thick, small and rounded; body each side of the head auriculated; head emarginate before; tentacula two, subcylindric, or subconic, slightly contractile, with the eyes near their exterior base; mouth in the emargination, without teeth; branchial cavity very large, situated on the anterior part of the back, containing a fascicle of long branchial filaments, which extend forward, and at tip float on the right side of the neck; anus on the right side.

Obs. These are marine shells attaching themselves to various objects. At least many of the species have no locomotion, passing their whole life in one spot, and being moulded upon the surface of their resting place, exhibit its curvature and inequalities.

Lamarck separated the species from the Linnean *Patellæ*, forming a very natural and very distinct group. For although it exhibits a slight similarity to *Septaria*, Feruss., yet it is readily distinguished from that shell, which has not a proper diaphragm, the labium being only a little prominent and acute; it is also a fresh water, operculated shell, allied to *Neritina*.

The genus *Pileolus*, Sowerby, has a very prominent labium or diaphragm, but the spire is altogether concealed.

CREPIDULA PLANA.—*Crepidula plana, nob. Journ. Acad. Nat. Sci., vol. 2, p.* 226.

Obs. This species is remarkable for its depression, being without convexity above, and is even often curved upward. In order to give space beneath for the substance of the animal, the margin of the shell is vertically deflected. The general curvature is various in different individuals, being modified in compliance with that of the surface on which they rest. Pl. 44.

MODIOLA.—Shell equivalve, inequilateral, obliquely elongated, more or less subovate, regular; summits near the posterior extremity, but not terminal; anterior margin obtusely rounded; posterior margin short, rounded; posterior base a little gaping to permit the passage of the byssus; ligament marginal, rectilinear, subinterior, elongated; hinge edentulous; two principal, remote muscular impressions, of which the anterior one is larger, and securiform; palleal impressions entire.

Obs. A genus of marine bivalves, separated by Lamarck from the Linnæan genus *Mytillus*, in consequence of the beaks not being terminal, as they are in that group. It must be confessed, however, that they are very closely related, corresponding in the other characters of the shell, as well as in the habits of the animal, the organization of which, according to the anatomist Poli is similar, and to which collectively he appropriates the name of *Callitriche;* for a description of it the reader is referred to the genus *Mytillus*. Several species blended by Lamarck in *Modiola*, were separated by Cuvier under the name of *Lithodomus*, in consequence of their habit of penetrating and dwelling in the interior of calcareous rocks and other solid substances; their shell, excepting its more cylindrical form, has much the character of *Modiola;* but it is probable, judging by their mode of life, that the characters of the animal will justify the arrangement of Cuvier.

The byssus is a fascicle of filiform fibres, each of which is suddenly enlarged at tip so as to form a little disk, that is applied by the foot of the animal to the supporting object.

Lamarck described twenty-three recent and several fossil species.

MODIOLA PAPUANA.—*Specific character.* Shell oblong, epidermis reddish-brown, shell violaceous.

Musculus papuanus, D'Argenv. Conch. (*Lam.*)

Modiola papuana, Lam. An. sans Vert., &c.

Desc. Shell oblong, subovate, very narrow behind and widely rounded before; umbonial slope obtusely rounded and prominent; surface rather deeply wrinkled; epidermis reddish-brown, beneath which the surface of the shell is more or less violaceous; within dull whitish, somewhat iridescent.

I received several fine specimens of this shell from Dr. D. H. Storer as inhabiting Cape Elizabeth and Prout's Neck, Maine. It is the common " Horse muscle " of the English collectors and appears to be abundant in the European Ocean and Mediterranean Sea. Leach says, " beneath the epidermis the shell is invariably whitish," whilst Lamarck says, " Epiderme noirâtre; test lilas." The shell appears to become more elongated with age.

Adanson's figure (pl. 15, fig. 1,) generally quoted for this species, is probably altogether distinct; it is but little more widely rounded anteriorly than posteriorly, and the dorsal angle is much more prominent. Leach quotes *Mytilus modiolus*, Linn., as a synonym of *M. papuana;* but Lamarck and some other conchologists quote it with doubt as the same as *Modiola tulipa*, Lam.

Laskey, in the Transact. of the Wern. Soc., says they attain to the length of nine inches; the largest in my collection is five inches and three-fourths long. Pl. 45.

MELANIA VIRGINICA. Var. *a.* Shell destitute of the rufous bands. Pl. 47, f. 2.

Buccinum virginicum, Gmel. p. 3205, *Dillw. Descr. Catal. p.* 652.

Lister, Synop. pl. 113, *fig.* 7.

Paludina virginica, nob. Nicholson's Encycl. (*3d Am. Ed.*) *art. Conch. pl.* 2, *fig.* 4.

Melania fasciata, Menke, Synop. Mollusc. p. 82. [Var. *a.*] *Lister, Synop, pl.* 110, *fig.* 4.

MELANIA MULTILINEATA, nob. *Journ. Acad. Nat. Sci., vol.* 5, *p.* 380.

Melania curta, Menke, Synop. Mollusc. p. 81.

It is closely related to *M. virginica*, nob., but may be distinguished by its striæ. Pl. 47, fig. 3.

MELANIA SEMICARINATA, nob. *Disseminator of Useful Knowledge, vol.* 3. Pl. 47, f. 4.

MELANIA LAQUEATA, nob. *Disseminator of Useful Knowledge, vol.* 3. Pl. 47, f. 1.

RANELLA.—Shell oval or oblong, more or less depressed in consequence of having a range of varices only on each side, forming a somewhat oblique longitudinal series; aperture oval, the labium being much arquated; base canaliculated, sometimes a little emarginated; a sinus at the superior termination of the labrum; epidermis distinct; operculum horny?

Obs. These are the Frog and Toad shells of collectors, a genus of well marked Marine shells dismembered by Lamarck from the Linnean *Murex*, in consequence of their lateral margined character. Montfort made another division of these shells; to those with an umbilicated columella he gave the generic name of *Apollon*, and those which have no appearance of umbilicus he named *Buffo*; these designations, or rather their corresponding words Appole and Crapaud, are adopted by Blainville as subgenera of *Ranella*. These shells are sufficiently distinct from those of any other group and cannot be mistaken, if we except a few species which approach *Triton*, (a name which ought to be changed, as it had been previously applied as a scientific designation by Laurenti to a genus of *Amphibia*) a genus which is distinguished by having its varices rare and not at the equal distances of half volutions from each other. The animal does not seem to be known, but judging by analogy, it probably resembles that of *Triton* and *Murex* and has therefore a horny operculum, composed of lamelliform elements, disposed in an imbricated manner, and commencing at the superior tip. It must also be carnivorous.

RANELLA CAUDATA, nob. *Jour. Acad. Nat. Sc. vol.* , *p.* 236.

Obs. This is a common species on the coast of the United States. Its generic affinity is not always obvious, as in some specimens the varix of the aperture, only, is well formed. Pl. 48.

CERITHIUM.—Shell more or less turrited, often tubercular; aperture small, oblique, with a short, truncated or recurved canal at base which is not emarginated; labium concave, more or less distinct, groove at the junction of the labrum with the preceding whorl; operculum small rounded.

Animal much elongated; mantle prolonged in a canal on the left side; foot short, oval, with an anterior marginal groove; head with a proboscis, depressed; tentacula remote, with the eyes on their middle, beyond which they are slender; mouth terminal, vertical, without labial tooth and with a very small tongue; a long and narrow branchia.

Obs. Bruguèire adopted the name of this genus from Adanson, who says, that Fabius Columna used the word to designate one of the species. The following is the descriptive appellation of the latter, "Buccinum tuberosum Cerithium parvum." All the species which Adanson referred to it are correctly placed, with the exception of the Ligar, (*Turritella terebra*, L.) and the Mesal, both of which he was aware differ generically from the others. He thus describes the operculum of *C. radula*, L., and his figure corresponds in character, "opercule exactement orbiculaire, cartilagineux, fort mince, brun transparent et marqué de cinq sillons circulaires concentriques," but Blainville says it is subspiral. They are marine, and crawl upon the mud, feeding upon small animals.

These shells are generally elongated cones, beautifully decorated with regular series and bands of granules, tubercles and other symmetrical protuberances. Linné placed the species known to him in the very different genera *Murex*, *Trochus* and *Strombus*. Blainville includes, as subgenera, *Pyrena*, Lam., *Potamides*, Brong.. *Pyrazas*, Montf., *Nerine*, Def., and *Triphora*, Desh. The aperture of the two latter have a complicated appearance, and the others are altogether destitute of canal.

Numerous recent and still more fossil species have been described, chiefly by Lamarck, who remarks, that the more our collections become enriched, the more difficulty attends the determination of of genera, and particularly of species; the vacancies which we supposed to be natural limits become proportionally filled up. The difficulty he experienced in fixing the character of each species of *Cerithium* led him to the conclusion, that it is principally in this genus that this fact is the most evidently shown, because the collections abound in these shells. The study of these shells is very important to the geologist in his attempts to ascertain the changes that have taken place in the surface of the globe.

CERITHIUM MUSCARUM.—*Specific character*. White, with **costæ, transverse striæ and series of brown spots.**

Desc. Shell oblong-conical, with rather distant, longitudinal, prominent ribs, and distant prominent spiral striæ, which by passing over the ribs give the latter a crenate appearance, and are five in number on the body whorl and four on the second, the intervals with smaller parallel striæ; ribs about eleven on the body whorl; volutions nine, a little convex; suture indented, distinct; aperture oblique, oval-orbicular; labium concave; color pure white, with reddish brown spots on the striæ so arranged as to exhibit longitudinal and transverse series.

Obs. The regularly arranged spots on a white ground, give this species a very neat and delicate appearance.

It was communicated by Mr. Elliott, who informed me that it inhabits the southern shores of Florida. Pl. 49, f. 1.

CERITHIUM SEPTEMSTRIATUM.—*Specific character.* With longitudinal costæ and transverse striæ; the costæ bifid towards the base; volutions blackish, white above.

Desc. Shell turreted, with longitudinal ribs rendered somewhat nodulous by the passage of elevated spiral striæ over them; ribs thirteen on the body whorl, their interstices much more deeply excavated near the suture, and each divided into two on the basal half; spiral striæ on the body whorl seven, with smaller parallel striæ between them, on the second whorl are four striæ, and on the third three; volutions nine; suture not indented; aperture oblique, oval-orbicular, dark livid within and not distinctly striated; labrum whitish on the upper margin, often interrupted by small brown lines corresponding with the exterior margin slightly thickened; labium concave, with callus at the junction with the labrum, and with the canal livid; color dusky or blackish, the interstices of the striæ often whitish, with a superior margin to the whorls.

From Mr. Elliott. It is a very pretty shell, inhabiting the southern coast of Florida. I think that it approaches *C. zonale*, Brug., though it does not perfectly agree with Lamarck's description, particularly in not being "longitudinaliter obsolete plicate," for the folds in our shell are so prominent and robust as to deserve the name of ribs.

It seems probable that Lister's figure 81, of plate 1018, is intended for this shell; to which figure Gmelin gave the name of *Murex minimus*. This practice of naming figures of older authors, I conceive leads to error, and ought to be condemned by every modern naturalist. Plate 49, fig. 2.

CERITHIUM FERRUGINEUM.—*Specific character.* Pale ferruginous, granulated by longitudinal ribs and transverse striæ.

Desc. Shell oblong-conical with longitudinal ribs rendered nodulous or moniliform by the passing of elevated spiral striæ over them; ribs about twenty on the body whorl, almost interrupted by the interstices of the striæ; striæ about seven, with intermediate smaller ones on the body whorl, and but three on the second whorl; volutions seven; suture inconspicuous; aperture oblique, oval, whitish within; labrum slightly thickened on the exterior margin, and with obsolete impressed lines on the inner side corresponding with the exterior striæ; color ferruginous.

Obs. Communicated by Mr. Elliott as an inhabitant of the southern coast of Florida. Its general form is similar to that of the preceding species, but it is smaller, its elevations are more rounded like granules, and its ribs are not bifid. Plate 49, fig. 3.

MYTILLUS.—Shell equivalve, inequilateral, obliquely elongated, more or less ovate-acute or subtriangular, or subcuneiform, regular; summits posterior and terminal, acute; anterior extremity obtusely rounded; posterior base a little gaping to permit the passage of the byssus; ligament marginal, deeply seated, subinterior, rectilinear, elongated; hinge edentulous, or with one or two rudiments of teeth; two principal remote muscular impressions, of which the anterior one is large and elongated; palleal impression entire.

Obs. This genus has been considerably modified since it came from the hands of our great master Linné, who united in one assemblage shells of divers characters, and constructed by animals of opposite habits, forms and organization. Bruguiére distinguished the widely different genera *Anodonta* and *Avicula;* Lamarck separated *Modiola,* and Leach parted from *Avicula* the celebrated pearl shell of Celon under the name of *Margarita,* which was afterwards called *Meleagrina* by Lamarck. Cuvier instituted the genus *Lithodomus,* for *M. lithodomus,* and some other species which perforate and reside within calcareous rocks. But of these the most closely allied to the present group are unquestionably *Modiola* and *Lithodomus,* which two are united together by Lamarck, and are considered by Blainville only as subgenera of *My-*

tillus; and however closely allied we may acknowledge them to be, those genera may be distinguished by having the posterior margin arquated somewhat prominently, the apices or beaks not being terminal as in *Mytillus*. The latter naturalist gives the following account of the animal. "Body oval, dilated; mantle open at its inferior middle only, which at its anterior extremity is fringed; foot linguiform, canaliculate, with a byssus at its base and many pairs of retractor muscles; mouth with simple lips; two adductor muscles, of which the posterior one is very small.

Several species are eatable, and the common Muscle of Europe (*M. edulis,* L.) is taken to market in large quantities for the table. All the species are marine with the exception of the *M. polymorphus,* Gm., or *Chemnitzii,* which inhabits the Danube and the Commercial Docks near London, but which is probably not, strictly speaking, of this genus, if we may judge by the somewhat chambered appearance of the beak cavity.

They attach themselves by means of their byssus to rocks, stones and other fixed bodies, and even to one another. The species are numerous; Lamarck enumerates thirty-seven, of which two are fossil, and several have been more recently described. Some species are infested by a parasitical *Pinnotheres.*

MYTILLUS HAMATUS.—Longitudinally grooved; incurved at base.

Mytillus hamatus, nob. Journ. Acad. Nat. Sci., vol. 2, p. 265.
Mytillus striatus, Barnes.

Obs. A very common species in the Gulf of Mexico, and is carried to the New Orleans market in consequence of its parasitical attachment to the common oyster. Hardly a cluster of oysters can there be found unaccompanied by one or more and generally numerous specimens of this shell, in various stages of growth. Our figure represents a fine large specimen, in which the incurved tip is not so remarkable as in many smaller individuals, and the form is somewhat more elongated and less triangular. It seems to approach *M. decussatus* as described by Lamarck, but in that species the transverse striæ are stated to be unequal, and its inner margin is not said to be of a different color; a character which in our shell is very obvious. Barnes read a description of it to the Lyceum of Natural History of New York in 1823, (see Silliman's Journal. vol. 6, p. 364.)

It does not reach the attributed magnitude of *M. crenatus*, Lam., a species which was supposed by that author to inhabit the coast of Carolina; but if either of the different figures of Lister, Sowerby, or that of the Encyclopœdia Methodique is a tolerably correct representation of it, I have certainly not met with it. Pl. 50.

[Notes on 4th page of cover of part v.]

Add to the synonyms of *M. papuana*, Lam. Lister, pl. 1057.

In the observations on *Sigaretus perspectivus* in No. 3, I remarked its striking similarity to *Cryptostoma leachii*, Blainv. On further comparison I find that it cannot be generically separated from that species, and the reader is therefore requested to alter the name to *Cryptostoma perspectiva*, nob. Analogy also indicates the change of *Sigaretus maculatus*, nob., *Cryptostoma maculata.* We shall in our next number give the generic character of *Cryptostoma*, to be substituted for that of *Sigaretus*, which latter can be retained until we publish a species of that genus. In the 2d edition of the Règne Animal, Cuvier, in a note to the genus *Cryptostoma*, says, that a species was sent from Carolina by Mr. L'Hermenier. This was doubtless one of the above, perhaps the *perspectivus*, nob., and to which he gives the name of *Cr. carolinum*, Cuv., not being aware that I had long since described it.

Of *Unio glebulus*, N., Mr. Barabino has recently sent me some fine specimens from Bayou Teche, one of which is four inches and three-tenths broad, and two inches and four-fifths long.

A *Venericardia* was presented to me several years since by my brother, who obtained it on the coast of New Jersey. I described it under the name of *cribraria*, but as the specimen is imperfect I did not publish an account of it. It is longitudinally ovate-orbicular, with twenty slightly elevated ribs, more distant from each other than their width, decussated by concentric, almost equally elevated lines. Length one inch and about three-twentieths, and breadth one inch and one-twentieth.

Can this be a variety of the *borealis* of Conrad? Having but a single specimen I cannot determine this question.

[Am. Con., part vi., April, 1834.]

UNIO NEXUS.—*Desc.* Shell transversely triangular, subrhomboidal, much inflated, thick; beaks prominent; anterior side much depressed, in its middle elevated so as to make an almost rectilinear hinge margin, with a broad, shallow groove, which extends from the beak to the anterior margin; anterior margin forming nearly a right angle with the base, obtusely emarginate in the middle by the termination of the groove; umbonial slope carinated, in consequence of the depression of the anterior side; lunule very short; posterior margin very short, rounded; color light brownish, obsoletely radiated; within white; cardinal teeth direct; lateral teeth rectilinear, short, with but little obliquity; posterior accessory cicatrix obliquely elongated, slender; anterior accessory cicatrix confluent.

Unio nexus, nob. Transylvania Journal, vol. 4, *p.* 527, **1831.**

Unio arcæformis. Trans. Amer. Philos. Soc., vol. 4, *N. S.* **1832.**

The shell which we have designated by the above name is closely related to *triqueter*, Raf., but differs in the greater prominence of the superior portion of the anterior margin, the shorter posterior margin and lunule, the direct cardinal teeth, and the little obliquity of the lateral ones. It was sent to me from Nashville by Dr. Troost. I may remark that some of the shells of Cumberland river vary much from their corresponding species of other streams, if I may judge by several specimens which I have seen from that river.

In stating the generic character, the number of muscular impressions is said to be two, by which is understood, two principal ones, for that there are many smaller ones is familiar to all those who have examined these shells. Dr. J. G. Klees in his "Dissertio Inauguralis," (for which work I am indebted to Dr. L. D. Schweinitz,) says, "musculis duobus binis majoribus clausoribus accessoriis." Ferussac, in his "Notice sur les Ethéries," says, "Presque toutes les *mulèttes* et les *Anodontes* offrent quartre impressions séparées, et l'on n'a point encore distingué d'une maniére comparative celui des muscles d'attache que dans leur position varié acquiert une prédominance sur les autres, selon la forme de l'animale, la grosseur, ou la figure des valves." The four principal cicatrices of course exist in all the species of this family, but they are sometimes so approximated in pairs as to form but two or three separate impressions. The several smaller cicatrices in the cavity of the beaks indicate points of the attachment of small dorsal muscles, for the secure support of that part of the animal. The palleal impression is also very distinct. These dorsal cicatrices, were, no doubt, taken into acccount by Mery, Mem. Acad. Royale des Sci. for 1710, p. 409, who says that there are eight muscles attached to the inner surface of the shell. Pl. 51.

UNIO APICULATUS.—*Desc.* Shell subquadrate, the diameters being subequal; summits not very prominent: hinge margin declining, and with the anterior margin compressed and separated by an obtuse angle; anterior margin generally retuse; basal margin retuse before the middle; posterior margin rounded; disk with a costa from the summit descending to the anterior basal angle, which is somewhat prominent and rounded; behind the costa is a much dilated groove, not very deeply impressed; the whole surface, without exception, is studded with small, subequal eminences, which are more or less rounded or transverse and arranged more or less symmetrieally in lines, which, before the costa, curve towards the ligament and anterior margin, are angulated in the groove and on the middle, and thence are arquated towards the posterior margin; within pearly white, iridescent before; anterior accessory cicatrix confluent; posterior accessory cicatrix small, hardly distinct, rounded.

Unio apiculatus, nob. "Disseminator," 1829.

Unio asper. Amer. Philos. Trans., 1832.

Obs. I obtained a few single valves of this handsome species, from a large quantity, consisting of many wagon loads, of the *Gnathodon truncatus*, Lam., (*Cyrena*) at New Orleans, during a short sojourn in that city with Mr. Maclure in 1827. This vast heap of dead and bleached shells, had been collected on the shore of Lake Ponchartrain, and conveyed by means of small vessels through the canal, for the purpose of covering part of the "levee" of that city, as a substitute for a pavement. I have subsequently received several good specimens from my friend Mr. Barabino.

In general outline and form of the disc, it has a very close resemblance to *U. quadrulus*, Raf., but the surface is in every part ornamented with crouded, elevated, more or less rounded tubercles, not very different in point of size, and symmetrically arranged in angulated and arquated series. Notwithstanding these differential traits, I think it not improbable that when we shall become better acquainted with this Protean genus, the *apiculatus* may be considered as a variety only of the *quadrulus*. Pl. 52.

UNIO QUADRULUS, Raf.—*Specific character.* Shell subquadrate, tuberculated, with a nodulous ridge and dilated groove.

Unio quadrulus, Raf. Ann. gen. des Sci. Phys., vol. 5.

Unio rugosus, Barnes. Silliman's Journ., vol. 6, *p.* 126. *Hildreth, Silliman's Journ., vol.* 14, *p.* 282.

Unio lacrymosus, } *Trans. Amer. Phios. Soc., N. S., vol.* 3
Unio asperrimus, } *and* 4.

Desc. Shell narrowed, compressed and thin before; short, obtuse, rounded and wider behind: beaks slightly elevated; ligament more elevated than the beaks; hinge margin compressed, carinate; basal margin falcate, emarginate, and compressed; anterior margin subangulate; anterior dorsal margin subtruncate, nearly straight; anterior basal margin projecting; epidermis dark brown, under the epidermis pearly white; surface rough and scaly, wrinkled transversely and waved longitudinally, having distinct irregular transversely compressed tubercles; a broad nodulus, elevated, somewhat double ridge extending from the beaks to the anterior basal edge, and projecting on that part; a broad furrow or wave behind the ridge ending in the emarginate basal edge, and a furrow before separating the anterior hinge and anterior dorsal margin; cardinal teeth sulcated; lateral tooth striated, rough, and in the left valve somewhat double; posterior muscular impression deep and partly rough; cavity of the beaks angular, compressed and directed backward under the cardinal tooth; naker pearly white, and on the fore part iridescent.

Obs. The above is Barnes' description of this strongly marked, common species. It is an inhabitant of the Ohio and its tributaries, and approximates, by its varieties to some of the varieties of *U. bullatus*, Raf. Barnes compares it with the *U. verrucosus*, Raf., to which, however, it has but a remote affinity. I have received specimens from Dr. Hildreth of Marietta and Mr. Barabino of New Orleans. The impressions of the plate, with Barnes' name of rugosus, were colored before I received the " Monograph of the Bivalve shells of the Ohio," the faithful translation of which, Mr. Poulson presented to me. Pl. 53.

PLANORBIS.—Shell univalve, thin, fragile, discoidal or revolving in the same horizontal plane; concave above and beneath, the spire, being impressed; aperture rounded-ovate, entire at base, the labia interrupted by the convexity of the penultimate volution; labrum simple; operculum none. Animal depressed, spiral sinistral; foot rounded, small; tentacula two, long, slender, contractile; eyes at the inner base of the tentacula; mouth somewhat exertile, armed above with a lunate, simple tooth, and beneath with small cartilaginous hooks; pulmonary orifice on the collar, near that of the vent; genitals on the same side, and separate, that of the male near the tentaculum, of the female at the margin of the collar.

Obs. Lister first separated these shells by placing them in a distinct section of the fluviatile kinds. In 1756 Guettard characterized the genus very accurately, both the animal and its shell, and applied to it the name by which it is now universally known. Adanson and Geoffroy afterwards adopted the genus, the former under the name of *Goret.* Although this natural genus appeared to be thus firmly established, our great master Linnè subsequently placed the species in the genus *Helix,* without any distinction whatever; an arrangement, however, in which he was not followed by any of the distinguished naturalists who succeeded him.

Lamarck in his earlier works, placed the genus near *Ampularia,* deceived perhaps by the equivocal characters of *A. cornu arietes,* which he supposed to be a *Planorbis,* but he afterwards referred the genus to its true place in the family of *Pulmonea aquatica,* next to *Limneus.* Like all the species of this family, the *Planorbis* never reside in deep water, but frequent the shores where they can resort to the surface to inhale the air. They inhabit fresh water and abound in various parts of the globe.

The shell of *Planorbis* has the appearance of being sinistral, and this character has been almost universally stated in the generic definition; several conchologists, however, are now of the opinion that it is dextral, notwithstanding the sinistral form of the animal. Des Moulins in the "Actes de la Soc. Linn. de Bordeaux," says that "the shell of the *Planorbis* is essentially dextral." Deshayes in his account of this genus says that it is only necessary to examine the greater number of the species and to compare them with the dextral *Limneus* and sinistral *Physa,* to be convinced, that in the normal position, the shell of *Planorbis* is truly dextral; but that the animal is really sinistral; and he thinks we ought rather to admit that a sinistral animal has a dextral shell, than that the aperture is not in the normal direction, corresponding with that of all shells yet discovered; and that there is an evident contradiction between the animal and its shell, as is also exhibited in the *Haliotis* and probably in *Ancylus.*

The species are rather numerous, and Deshayes describes eleven fossil species of the environs of Paris.

In the following descriptions the shells are considered sinistral.

PLANORBIS LENTUS.—*Desc.* Shell dull brownish or yellowish brown, sub-carinate above, particularly in the young shell; whirls nearly five, striate across with five, raised, subequidistant lines, forming grooves between them; spire concave; aperture large, embracing a large portion of the penultimate volution; labrum more acutely, but not very prominently arquated above, its basal portion horizontally subrectilinear in the adult and not extending below the level of the base.

Obs. I obtained this species in the canal at New Orleans and I indebted to Mr. Maclure and also to Mr. Barabino for many fine specimens collected in the vicinity of that city. I also found the same species at Ojo de Agua, Mexico, when travelling in that country with Mr. Maclure. It differs from the following species in having the labrum less prominent above, and the basal portion of this part being in the adult horizontally subrectilinear so as not to touch a plane on which the base of the shell may rest; the aperture also is more transverse. Pl. 54, fig. 1.

PLANORBIS TRIVOLVIS.—*P. trivolvis, S., Amer. Ed. of Nicholson's Encyc., Article Conchology, pl.* 2, *f.* 2.

Cochlea, trium orbium, Lister, Conch. pl. 140, *f.* 46.

Petiver, Gazophyl. pl. 106, *f.* 17.

Obs. This is an inhabitant of the Middle and Northern States and is very common in many districts. I have found it in Pennsylvania, New Jersey, Delaware, Maryland, Falls of Niagara, Upper Canada, and in the vicinity of Council Bluff on the Missouri. Dr. Eights sent me specimens from Albany, New York, and Mr. Jessup gave several from Cayuga lake. Lister gives two pretty good figures of this shell and quotes Virginia as the native locality. Muller, Gmelin and Dillwyn, incorrectly referred to Lister's figures as *Helix albella*, but the latter author in his edition of Lister agrees with us in considering them as representations of the present species. Pl. 54, fig. 2.

PLANORBIS BICARINATUS, S. *Amer. Ed. of Nicholson's Encyc. Article Conchology, pl.* 1, *fig.* 4.

Helix angulatus, Racket. Linn. Trans. vol. 13, *p.* 42, *pl.* 5, *fig.* 1.

P. bicarinatus, Sowerby's Genera.

Obs. It is an inhabitant of the same extensive region as the *trivolvis*, and was obtained from Lake Huron by Mr. Racket, whose name had been previously applied in this genus by Brard. in the Ann. du Museum, vol. 14.

It is remarkable that Sowerby has represented this species under the name of *bicarinatus*, apparently without being aware that I had previously described it under the same name. Pl. 54, fig. 3.

LIMNEUS EMARGINATUS, *S. Journ. Acad. Nat. Sci. vol.* 2, *p.* 170.

Obs. In general obesity it has a resemblance to *L. inflatus*, Brong. It was first sent to me by Mr. Aaron Stone from the lakes of Maine. Dr. Bigsby presented me with a specimen which he obtained in Upper Canada, and I have recently received several from Mr. Titian Peale, also found in Maine, one of which is double the size of the figure represented in our Plate 55, fig. 1.

LIMNEUS CATASCOPIUM, *S. Amer. Ed. of Nicholson's Encycl. Article Conchology.*

Obs. Its European analogue is the *L. peregrum*, L., from which it may be distinguished by a deeper fold of the columella, and a more acute curvature of the inferior portion of the aperture. Pl. 55, fig. 2.

LIMNEUS DECIDIOSUS, *S. Journ. Acad. Nat. Sci. vol.* 2, *p.* 169.

Obs. My brother, B. Say, subsequently ascertained it to be an inhabitant of Pennsylvania; found also near New Harmony by Lesueur. Pl. 55, fig. 3.

PECTEN.—Shell free, bivalve, inequivalve, thin, auriculated, equilateral; hinge margin transverse, rectilinear, connected throughout by a ligament, the cartilage being inferior, fixed in a triangular fosset of each valve, under the apex; apices contiguous, not elevated; muscular impression large, subcentral; palleal impression without sinus: animal suborbicular; foot very small, sometimes with a byssus; mantle fringed with tentacular papillæ, of which the series is interrupted somewhat regularly by shorter cylindrical processes terminating in oculiform disks; mouth large, transverse, surrounded with fringed lobes, and with a thin lamellated palp on each side; anus free; branchiæ large.

Obs. The numerous species of shells which form this very beautiful and natural genus, inhabit almost universally the margins of the marine portion of the globe, from the torrid zone to the inhospitable shores of the Polar seas. Attracted by the regularity of their form and the beauty of their coloring, the ancients distinguished them as a group from all other shells. Aristotle and Pliny indicated several species, and compared them to a comb or pecten from the similitude of their ornamental rib-formed radii. Distinguished artists have judged them worthy of representation on their canvas, and the voluptuous form of *Venus* is seen supported on the waves by the valve of a *pecten*. A beautiful species which inhabits a portion of the Pacific is deified by the natives of some of the islands in that ocean. In Catholic countries they are commonly called Saint James' shells, and the pilgrims who visited the shrine of St. James of Compostella, in Spain, were careful to attach one or more to their dress, collected on the neighboring shore, where they abound.

It is not a little surprising that although all the earlier writers separated these shells from others as a natural group, yet our great master Linnè placed them in his genus *Ostrea*, notwithstanding the striking difference in the structure of their animals, already indicated by Lister and others. Bruguière corrected this error and restored them to the just rank of a separate genus, now universally acknowledged. The family of *Pectinides* to which it belongs is composed of the genera *Lima*, *Plagiostoma*, *Pedum*, *Pecten*, *Hinnite*, *Plicatula*, *Spondylus and Podopsis*. The latter is so nearly related to *Spondylus*, and *Plagiostoma* so closely resembles *Lima*, that it has been proposed to suppress them both, which would leave but six genera. Sowerby insists that *Hinnite* cannot be a separate genus, but must be united to *pecten*. Of these the three first only are symmetrical, and furnished with a byssus. The apices of *Lima* are distant and the auricles are similar in both valves. The ligament in *Pedum* is inserted in a canaliform fosset on the inner face of the summits, prolonged into the interior.

The ears of *Pecten* are equal in some species and unequal in others, but generally on one of the valves one of the ears is deeply emarginated beneath, to admit the passage of the byssus, by which the animal attaches itself to foreign bodies, as represented by Reaumer in Mem. Acad. Royale des Sc., 1711, pl. 2, fig. 12. Some species have a small divergent tooth on each side of the cardinal fosset in one valve, and corresponding depressions in the opposite valve. In many species are several very small tubercles or teeth, at the base of the emarginated ear extending from near the apex to a point beyond the ear.

Many of the *Mollusca* are fixed during life to one spot, others glide along with a slow and regular snail-like movement; but locomotion in this genus is rapid, and by a succession of springs or leaps. An alternate motion of opening and quickly and forceably closing the valves, enables them to rise to the surface, and they sometimes make small leaps above it in ricochet. When left upon the beach by the recession of the tide, they regain the water by the same action. Mr. Lesson immersed a basket of *Pectens* in the water of the sea, within about six inches of its rim. The individuals, he says, which formed the superior layer, constrained in their movements by those that were beneath, after many fruitless efforts, succeeded in leaping from their prison. No sooner did they fall upon the water, than by striking their valves rapidly together, they ran or rather skipped a few seconds upon the surface and then sunk to the bottom. In this way all the contents of the basket disappeared within fifteen minutes. Smellie repeats from Pliny that "when the sea is calm, troops, or little fleets of Scallops, are often observed swimming on the surface. They raise one valve of their shell above the surface, which becomes a kind of sail, while the other remains under the water, and answers the purpose of an anchor, by steadying the animal and preventing its being overset. When an enemy approaches, they instantly shut their shells, plunge to the bottom, and the whole fleet disappears!" We have not learned that this remarkable flotilla has been observed since the time of Pliny.

Many of the species are esteemed as food and are exposed for sale in the markets. They are commonly known by the name of Scallop, and the English collectors call them *Fans* in allusion to their form. D'Herbigny says that in Italy they are called *cape sante*, in Holland *mantels*; in Languedoc *coquilles large*, in Brittany and Lower Normandy, *Kofiches*. Deshayes enumerates two hundred species, more of which are fossil than living.

PECTEN ISLANDICUS.—*Specific character.* Shell suborbicular, with numerous rays; orange or rufous, with darker concentric bands.

Ostrea islandica, Muller. Chem. and Mart. Conch. vol. 7, *p.* 314 *and* 318, *pl.* 65, *fig.* 615 *and* 616. *Gmel. Lam. an. sans vert. p.* 474. *Desh. Encycl. Meth. p.* 724, *pl.* 212, *fig.* 1.

Ostrea cinnabarina, Born. Mus. p. 103. *Dillw. Catal. p.* 256.

Pecten pealeii, Conrad. Marine Conch. p. 12, *pl.* 2, *f.* 2. *Lister, Conch. pl* 1057, *fig.* 4. (The ears are represented as being equal.) *Seba, Mus. pl.* 87, *fig.* 7. *Olaffsen, Voyage, pl.* 10, *fig.* 1, (*Huitre.*)

Desc. Shell with very numerous, elevated somewhat scaly radiating lines, alternately smaller, increasing in number according to the growth of the shell to upwards of an hundred; intervals reticulated; ears unequal, beneath the emarginated one are five or six little teeth; valves not very unequal, of a reddish or orange color, with many concentric or darker bands and about three paler radii; on the flatter valve the colors are much paler; edge jagged with the produced elevated lines; within the convex valve is a large purplish spot, sometimes occupying a considerable portion of the surface.

Obs. Several fine specimens were sent to me a few years since by Dr. Harris, who obtained them from Dr. Bass of Boston; they were taken by fishermen in Chaleur's bay, New Brunswick. Dr. Storer has not yet found it near Boston.

Mr. T. Peale presented a specimen, which he found on the coast of Maine. According to Dillwyn it has been found on the coast of Scotland, and Banks procured one from the stomach of cod fish on the banks of Newfoundland. The late Mr. S. Coates of Philadelphia had an individual in his collection, which was drawn up on the lead by Capt. Coffin, in fifty-two fathoms water, on the eastern edge of the banks of Newfoundland in latitude 45 deg. 40 min. Linnè obtained it at West Gothland, and Olaffsen in Iceland.

It varies much in depth of coloring, and one in my collection has the convex valve dark purplish both within and without, destitute of bands, and the opposite valve is tinted with purplish within on the upper half. Mr. Peale's specimen is more of an uniform dull orange both within and without, and with but little appearance of bands. Pl. 56, fig. 1*a*.

PECTEN DISLOCATUS, S., *Journ. Acad. Nat. Sci. vol.* 2, *p.* 260. *Encycl. Meth., pl.* 213, *f.* 3.

Obs. The specimen represented in the annexed plate I obtained on the coast of South Carolina, where it is rare. I do not know that the figure referred to above has been quoted by any author excepting Dillwyn under the *P. opercularis*, L. Mr. Conrad considers the *dislocatis* as identical with the *purpuratus*, Lam. Plate 56, fig. 2, 2*a*.

Nassa.—Shell univalve, subovate, ventricose, or subturreted, acute; aperture suborbicular, emarginated and reflected at base; labium with a more or less dilated callosity or calcareous deposite; labrum striated or sulcated within; operculum horny; animal depressed: tentacula two, conic-cylindric, inflated at the eyes; eyes near the exterior middle of the tentacula; proboscis very short or obsolete; mantle folded into a distinct tube before; orifice of the oviduct situated on the right at the opening of the branchial cavity; branchiæ pectiniform, unequal, nearly parallel; male organ on the right side of the neck; anus on the right; foot large, prominent and angular before, attenuated behind.

Obs. Deshayes informs us that Klein first used this generic term for some shells of a reticulated surface, having a fancied resemblance to the "Nasse d'osier" or willow net of fishermen. Lamarck, however, first separated the present genus from the Linnæan *Buccinum*, but has subsequently reunited it as a subgenus. In this arrangement many distinguished authors coincide, as Cuvier, Blainville, Ferussac (in his Tabl. Syst.) and Deshayes. Sowerby and some other naturalists still separate it as a distinct genus nearly related to *Cassis:* Montfort carries the division still further, and divides the *Nassæ* into *Phos*, *Alectrion* and *Cyclops*, and Schumacher has also separated from it a few, species, under the name of *Nana*, neither of which have been admitted by the best authorities; and it is not improbable that *Nassa* itself may be ultimately admitted universally as only a subgenus of *Buccinum*.

The species are numerous and are both recent and fossil. They feed on animal food and they sometimes devour the animal of some bivalve shells such as *Tellina alternata*, S., and one of the valves of this species often exhibits a neatly formed, round perforation, near the umbo, bored by a *Nassa*. These shells are sometimes smooth, but more generally with impressed striæ or grooves; others are reticulated so as to appear granulated or tuberculated.

A remarkable, depressed and even transverse species, the *neritea*, L., of which Montfort formed his genus *Cyclops*, differs so much in appearance from the usual form, that Gmelin considered it a variety of *vestiarius*, L., the type of the genus *Rotella*, and I observed it in a cabinet, arranged with species of that genus, from which it is in reality so widely distinct.

NASSA UNICINCTA, S., *Jour. Acad. Nat. Sci. vol.* 5, *p.* 211.

Obs. I am indebted to the late Mr. Stephen Elliott for this species, who found it on the coast of South Carolina. In the collection of the Academy of Natural Sciences of Philadelphia is a shell from the Antilles, resembling this, and although the striæ of the labrum are double in the former, yet it is probable that the two shells will be found to constitute one species when more specimens shall be examined and compared. Plate 57, f. 1*a*.

NASSA VIBEX, S., *Jour. Acad. Nat. Sci., vol.* 2, *p.* 231.

Obs. I obtained a few specimens on our southern coast, and my brother brought me one from the coast of New Jersey. I have since received a very perfect individual from the Academy of Natural Sciences, and several specimens from Dr. Ravenel, of Charleston, a gentleman who has devoted much attention to the shells of that region and to whom I am indebted for numerous interesting species. Plate 57, f. 2.

NASSA ACUTA, S., *Jour. Nat. Sci., vol.* 2, *p.* 234, pl. 5, fig. 3.

OSTREA.—Shell bivalve, attached, foliaceous, inæquivalve, irregular; apices becoming very unequal by age, the position of the superior valve being gradually changed with respect to the lower valve produces a corresponding elongation of the inferior apex; superior valve depressed; inferior valve larger, concave; hinge without teeth, tripartite, the middle portion in the inferior valve being a longitudinal groove for the reception of the cartilage, corresponding with a convexity of the upper valve; ligament attached to the lateral portions; muscular impression one, large, subcentral.

Animal depressed, margins of the mantle thick, not adherent, retractile, with a double range of short and numerous tentacular filaments; labial palpi long triangular; foot none; muscle bipartite, subcentral, no prominent syphon and no byssus.

Obs. Oysters are familiar to the knowledge of all those who reside in maratime districts, in almost every part of the globe. Under a rugged and irregular exterior is included an animal which supplies the most delicate food, and which has accordingly been eagerly sought for in all ages, as one of the chief luxuries of the table. Although the consumption of them has been immense from the time of the Romans to the present day, yet such is the rapidity of their increase, that their abundance does not appear to be limited. It is believed that the Romans first devised the present method of improving their good qualities, by transporting them when young to favorable situations, where there is an admixture of fresh water. The shells were used by the Athenians in performance of their right of suffrage, during the earlier periods of their government, and the sentence of condemnation or acquittal of the arraigned, was marked upon a shell; whence the word *ostracism* had its origin.

The oysters of England are held in higher estimation than those of Germany, France or Italy. We are informed that a foreign embassador at the Hague gave a sumptuous entertainment, during which oysters were introduced, that were supposed by their color to be from England. But all who ate of them were immediately seized with violent and continued vomiting. On enquiry it was ascertained that the oysterman had tinted the common oyster with verdegris, to obtain a higher price for them as English oysters.

It is related of Apicius that he had a method of preserving oysters for a long time, and that he sent them from Italy to the Emperor Trajan in Persia, as fresh as the day they were taken from the water. There is doubtless some exaggeration in this, and it is probable that his method may not have been preferable to that of our oystermen, who transport the animal in kegs to great distances. Aldrovandus and others of the earlier writers, entertained a singular and erroneous notion relative to the crab and the oyster. They state that the crab, in order to obtain the animal of the oyster without danger to their own claws, watch their opportunity when the shell is open, to advance without noise and cast a pebble between their shells, to prevent their closing, and then extract the animal in safety. "What craft!" exclaims the author "in animals that are destitute of reason and voice." We scarcely need to add, that the craft existed only in the imagination of a person who may have seen a crab feeding on an oyster that had fortuitously closed on a pebble.

In the acceptation of Linné the genus *Ostrea* included numerous species of various types of organization and exterior character, although Lister had already circumscribed the boundaries with correctness. From Linné's genus, Bruguière separated *Pecten*, *Perna* and *Pedum*, which are provided with a byssus. Lamarck conducted the analysis still further and formed the genera *Gryphæa*, *Lima* and *Malleus*. Of these the two latter are attached by a byssus. Lamarck gives the following characters to his family of *Ostracea*: "Ligament interior or half interior. Shell irregular, foliaceous, sometimes papyraceous." It comprehends his genera *Gryphæa*, *Ostrea*, *Vulsella*, *Placuna* and *Anomia*. The two latter have the ligament interior, and *Vulsella*, which is closely allied, is imbedded in sponges, and has a cardinal callosity in each valve, extending somewhat interior. *Gryphæa* is now by most authors considered as a group of the present genus, distinguished from the others only by the curved umbo, and I may remark that I possess an individual of *O. virginica*, which has the incurved apex of *Gryphæa*.

In the generic character we have mentioned but one muscular impression. There is, however, at least one other, which is very small, and situated near the hinge for the support of the back of the animal.

OSTREA EQUESTRIS.—*Desc.* Shell small, with transverse wrinkles, and more or less deeply and angularly folded longitudinally; ovate-triangular, tinted with violaceous; lateral margins near the hinge with from six to twelve denticulations of the superior valve received into corresponding cavities of the inferior valve; superior valve depressed but slightly folded; inferior valve convex, attached by a portion of its surface, the margins elevated, folds unequal, much more profound than those of the superior valve; hinge very narrow, and curved laterally and abruptly.

Obs. This small species is remarkable for the very abrupt lateral curvature of the beak, the continued line of which may be traced in favorable specimens on the exterior and inferior part of the umbo.

I obtained several specimens on the coast of Florida, attached to various objects, and Dr. Ravenel of Charleston sent me the individual represented in the upper part of the plate. It is seated on a *Conopea elongata*, S., which is attached to a branch of our common Gorgonia. He obtained it at Sullivan's island. The tendency towards the depressed spiral form in this shell, evinced by the great obliquity of the cardinal portion, which hardly protrudes beyond the margin, would arrange it with the genus *Gryphæa* in the estimation of some authors; a group, however, which we consider as a mere subdivision of the present genus. On the lower part of the plate is represented one of many specimens which I obtained in Florida attached to various objects. It seems to be closely related to a fossil of Virginia, to which Mr. Conrad has given the name *O. solea*, but as my specimen of that shell is imperfect and I have not his description, I cannot determine the degree of affinity; it may possibly be a variety of that species. I have also a specimen from the Antilles, and another that is reversed. Plate 58.

CYTHEREA.—Shell bivalve, equivalve, inequilateral, suborbicular, trigonate or transverse; four cardinal teeth on one valve, three of which diverge from the summit and one is isolated, situated under the lunule; three divergent cardinal teeth upon the other valve, and a fosset at a little distance, parallel to the lunule margin; no lateral teeth.

Obs. A genus of beautiful marine shells, included by Linné in the genus *Venus*, but separated by Lamarck in consequence of the middle tooth of the hinge being profoundly divided into two, and the posterior tooth being distant and parallel to the lunule edge. The name of *Meretrix*, which that author first applied to this genus, he subsequently thought proper to reject in favor of the present designation. An allied genus, the *Astarte* of Sowerby (*Crassina*, Lam.), has but two teeth in each valve. *Cyclas*, *Cyrena* and *Megadesma* have remote lateral teeth; *Cyprina* has one remote lateral tooth, and the posterior muscular impression of *Lucina* is elongated.

The species are numerous, inhabitants of almost every shore, and are imbedded in many fossil localities. The Japanese and Chinese paint and gild the inner side of *C. lusoria* with various devices, and make use of it in their games of chance, whence its name.

CYTHEREA ALBARIA.—*Desc.* Shell transversely oblong-ovate, inequilateral, wrinkles of growth more obvious towards the margin, somewhat polished, with a slight appearance of rather broad, numerous radii; beaks a little prominent in consequence of the concave curvature of the posterior dorsal margin; lunule rather large, impressed, distinct, oblong-cordate; posterior side prominent; anterior dorsal margin slightly arquated depressed towards the beaks, obtusely carinated on the submargin; anterior tip narrowed and rounded; within, margin simple; fosset of the posterior tooth simple.

Obs. This fossil shell was sent to me by the late Mr. Stephen Elliott who informed me that it was found on the banks of the Santee river, below the confluence of the Congaree and Wateree rivers in South Carolina. It is proportionally broader than *C. lilacina*, Lam., and much less broad than *C. gigantea*, Gm., of Florida. The specimen is very much thickened within on the inner side of the palleal impression, which is deeply sinuous anteriorly. Plate 59.

Petricola.—Shell bivalve, transverse, subtrigonate, or oblong, inequilateral, rounded behind, anteriorly narrowed and a little gaping; hinge having one or two teeth on each valve, or upon one of the valves only; palleal impression profoundly sinuous anteriorly.

Animal with two syphons, divided only at tip, unequal in length and diameter, contractile within the shell; mantle thicker on the margin and united, with a very small opening for the rudimental conic foot; mantle very small, transverse, chiefly concealed by two lips, which are extended laterally into small triangular palpi.

Obs. Lamarck in his last work, united *Rupellaria* of Bellevue to his *Petricola*, in his family *Lithophaga*, which, as its name implies, contains those genera of shells, which are destitute of accessory pieces and have the remarkable property of penetrating calcareous rocks and thus establishing for themselves a permanent and secure dwelling. This family consists of three genera, *Saxicava*, *Petricola* and *Venerupis*, which are closely allied. The hinge of the former is destitute of teeth, or in some instances has only obsolete tubercles, and the syphons of the animal are longer than in the present genus, and united to the extremity in one fleshy envelope, not retractile within the shell, but always in part exposed. *Venerupis* approaches nearer to *Venus* in the number of its teeth, which, however, are not divaricated as in the latter genus.

The means by which these animals penetrate dense calcareous substances, has been discussed by many able writers, without a satisfactory solution of the problem. Some have supposed that the operation is effected by the friction of the valves of the shell; but the valves of some species are very thin and not so dense as the substance they penetrate, and never exhibit any abrasion of their attenuated edges. Others contend that a peculiar acid or solvent must be secreted by some appropriate organ, which dissolves the rock by a chemical action; but neither anatomy nor chemistry have exhibited proofs in support of this opinion, and in this state of uncertainty we are still left to conjecture and analogy. We know that the power of penetrating calcareous substances, as well as wood and extremely dense earth, is not confined to animals of this family, but that many others bore through shells to devour the inhabitant, with too small a hole to admit any part of their own shell, and numerous other species, as their whirls revolve in the growth, remove the asperities of the preceding volution as the aperture approaches them. This effect is observable in almost all rough univalve shells; some, indeed, cover their slight inequalities with the calcareous deposite of the labium, but whenever the inequality is prominent, it is sure to be removed at the aperture, and it would seem that the operation may possibly be, in some instances at least, effected by the constant action of the soft parts of the animal, or by the agency of absorbents acting on the ultimate particles. This operation is by no means extraordinary, as every anatomist is aware that the bony portions of the animal frame are universally modified by the action of the softer parts. In many of the *Annelides* we find animals of a very soft, almost gelatinous structure, penetrating the hardest calcareous rocks, and into the substance of the thick valves of many shells. These analogies lead us to the conclusion that the Lithophaga excavate a lodgement in solid substances not by the friction or boring of their shells, but by the operation of their soft parts upon them, and not, as a distinguished naturalist has recently supposed, exclusively by maceration of their animal mucus. There are, however, some facts which seem to indicate the presence of a solvent. Mr. Osler has a specimen of a hard calcareous rock in which small masses of silex remain in relief on the sides of excavations formed by *Saxicava rugosa* and *Venerupis* *irus;* and another specimen of lime mixed with argil, in which the progress of three *Saxicavas* was arrested by a thin layer purely argillaceous.

PETRICOLA PHOLADIFORMIS, Lam., *An. sans Vetebr., vol.* 5, *p.* 505. *Sowerby's Genera, pl. Petricola, fig.* 1 *and* 2. *Conrad's Marine shells, pl.* 7. *Desh. Enc. Meth. p.* 747.

Petricola fornicata, S. Journ. Acad. Nat. Sci., vol. 2, *p.* 319.

Obs. This shell may be truly said to be an extraordinary species, having the deceptive exterior aspect of a Pholas, and like many of that genus residing in cavities drilled out of the most compact earth, as is also sometimes the case with the P. *ochroleuca,* Lam.

It is abundant on many parts of our coast from Maine to Florida. Dr. Ravenel sent me specimens from Charleston, and Dr. Storer informs me that it is common at Chelsea and Martha's Vineyard in Massachusetts. Plate 60, fig. 1.

PETRICOLA DACTYLUS, Sowb.—*Desc.* Shell transversely oblong-oval, white, with radiating raised striæ, which on the posterior half of the shell, from twelve to eighteen in number, are larger, and approximate, those of the anterior portion of the shell, filiform, the transverse striæ are undulated on the anterior part of the shell; basal margin arquated; teeth two in the right valve and one prominent one in the left.

Petricola dactylus, Sowerby's Genera, pl. Petricola, fig. 3.

Obs. For this species I am indebted to the kindness of Dr. Ravenel, who distinguished it from the preceding as a separate species. The largest specimen in my possession measures nearly two inches in breadth. It resembles the *pholadiformis,* but is a more robust shell, being less transversely elongated, the base more arquated, the larger striæ are more numerous and destitute of vaulted scales, and the teeth are quite different. I had distinguished it by the name of *flagellata,* but on a more close comparison with Sowerby's figure and very short description, in which no locality is given, it evidently approaches that species, and is probably identical. Pl. 60, fig. 2.

CRYPTOSTOMA.—Shell ear-shaped, univalve, spiral, very much depressed; spire hardly elevated above the general curvature, lateral; aperture very large, oblong, entire, embracing a portion of the preceding volution; labrum simple; volutions two or three;

columella short, spiral: nacre none; muscular impressions two, lateral, distant; a slightly revolving, elevated line on the inner surface; operculum none.

Animal tongue-shaped, chiefly formed by a very long, and very thick foot, which is narrower and massive before, truncated behind, canaliculated on each side and widely margining on all sides the contorted visceral mass, which is very small, slightly convex above, and covered by an interior shell; head depressed; mouth very small, concealed under the anterior and superior margin of the foot; tentacula two, compressed and appendiculated at base; a large branchial pecten; male organ under the right tentaculum; mantle without emargination.

Obs. That able anatomist, Blainville, was the first to detect the difference between the animal of the much depressed species of the genus *Sigaretus*, Adans., and of those with a more elevated spire; and notwithstanding the similarity of the shells he very judiciously separated them and formed the present genus, if we may judge by the characters he has stated, for which we rely entirely on his accuracy. It differs much from *Coriocella*, Blainv., the animal of which has a very small foot and a coriaceous shell.

C. PERSPECTIOUS, S.
C. MACULOTUS, S.

An attempt to exhibit a Synonymy of the Western North American species of the genera Unio and Alasmodonta.

UNIO.

1. U. NIGER, Rafinesque.*
cuneatus, Barnes.

2. U. CARIOSUS, S. Lam. B.
viridis, Raf.
siliquoides, B. (var.)
radiatus ? Gm.

3. U. FASCIATUS, Raf.
carinatus, B.

4. U. LEPTODON, Raf.
planus, B.
purpurescens, Swainson.
tenuissimus, Lea.

5. U. FRAGILIS, R. Sw. Deshayes.
gracilis, B. Hildr. Lea. Eaton.

6. U. NERVOSUS, R.
zigzag, Lea.
donaciformis, Lea.

7. U. LÆVIGATUS, R.
castaneus ? Lea.

8. U. RECTUS, Lam. Valenc. Eaton.
latissimus, R.
prælongus, B. Hildr.

9. U. DILATATUS, R.
nasutus, Lam.
gibbosus, B. Hildreth.

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* This writer and some others imitated Lamarck in giving the specific name in this genus a feminine termination, which we have changed in this table.

10. U. CYLINDRICUS, S. B. Hildr.
naviformis, Lam. Blainv. Valenc. Desh.
solenoides, R.

11. U. CARDIUM, R.
ventricosus, B.
occidens, Lea.
subovatus, Lea. (var.)
capax, Green. (var.)

12. U. OVATUS, S. Lam. B. Hildr. Valenc.

13. U. FASCIOLUS, R.
multiradiatus, Lea.

14. U. ALATUS, S. Lam. B. Hildr. Desh. Eaton.
megapterus, Raf.

15. U. TRIQUETER, Raf.
triangularis, B. Hildr. Eaton.
cuneatus, Sw.
formosus, Lea. (var.)

16. U. TRUNCATUS, R.
undatus, var. a Barnes.
elegans, Lea.

17. U. INTERRUPTUS, R.
brevidens, Lea.

18. U. LINEOLATUS, R.
depressus, R. (young.)
securis, Lea. Desh.

19. U. ELLIPSARIUS, R.
ellipticus, B.
crassus, S.

20. U. FASCIOLARUS, R.
crassus, Wood?
ponderosus, Gray.
mucronatus, (young,) B.
phaseolus, Hildr. S.
planulatus, Lea.

21. U. VERRUCOSUS, R.
tuberculatus, B. Hildr.

22. U. FLAVUS, R.
rubiginosus, Lea.

23. U. CYPHIUS, R.
œsopus, Green.

24. U. METANEVRUS, R.
nodosus, B. Hildr.

25. U. REFLEXUS, R.
cornutus, B.

26. U. RETUSUS, R.
stapes ? Lea. (var.)

27. U. FLEXUOSUS, R.
pileus, Lea ?

28. U. NODULATUS, R.
pustulatus, Lea.

29. U. QUADRULUS, R.
rugosus, B. Hildr.
lacrymosus, Lea.
asperrimus, Lea.

30. U. NODULOSUS, Wood, Dillw.
bullatus, R.
verrucosus, B. (var.) Valenc.
verrucosus albus, Hildr.
pustulosus, Lea.

31. U. TUBERCULATUS, R.
verrucosus, B.
verrucosus purpureus, Hildr.
tuberculosus, Valenc.

32. U. SUBROTUNDUS, R.
rotundatus ? Lam.
orbiculatus, Hildr.
circulus, Lea.
lens ? Lea. (young var.)

33. U. OBLIQUATUS, R.
sulcatus, Lea.

34. U. TRIANGULARIS, R.
ellipsis, Lea,

35. U. SCALENIUS, R.
decisus ? Lea. (var.)

36. U. OBOVALIS, R.
ebenus, Lea.

37. U. STEGARIUS, R.
irroratus, Lea.

38. U. MYTILOIDES, R.
caridiacea, Say of Guerin.
pyramidatus, Lea.

39. U. CUNEATUS, R.
patulus, Lea.

40. U. GIBBOSUS, R.
perplexus.

41. U. COSTATUS, R.
peruvianus? Lam.
undulatus, B.

42. U. TERES, R.
anodontoides, Lea.

43. U. OHIENSIS, R. (Anodonta.)
lævissimus, Lea. (Symphonota)
inflatus? Lea. (") var.

44. U. LATUS, R. (Anod.)
dehiscens, S.
oriens, Lea.

45. U. HEROS, S.
undulatus, S.
multiplicatus, Lea.

46. U. LUGUBRIS, S.
ater, Lea.
atra, Desh.

47. U. INTERRUPTUS, S.
trapezoides, Lea.

48. U. APICULATUS, S.
asper, Lea.

49. U. LAPILLUS, S.
fabalis, Lea.

50. U. MONODONTUS, S. Eaton.
soleniformis, Lea.

51. U. METALLICUS, S.
cuprinus, Lea.

52. U. NEXUS, S.
arcæformis, Lea.

53. U. POLITUS, nob.
subrotundus, Lea. (not Raf.)

54. U. CICATRICOSUS, S.
varicosus, Lea.

55. U. PLICATUS, S. B.
rariplicatus, Lam. Blainv. Desh.

56. U. PARVUS, B. Eaton.
glans? Lea. (var.)

57. U. UNDATUS, B.
trigonus, Lea.

58. U. SUBROSTRATUS, S.
iris, Lea.

ALASMODONTA.

1. A. MARGINATA, S. B.
U. calceolus, Lea.

2. A. COSTATA, R.
rugosa, B. Hildr. Eaton.

3. A. COMPLANATA, B. Hildr. Eaton.

[From 4th page of cover of p. iv.]

PECTEN VARIUS, L.—A specimen of this shell was presented to me several years since by Mr. Lesueur, as having been found by himself on the Northeastern coast of the United States. I have not learned that another has been obtained on our coast.

It seems probable that *Helix irrorata*, is a variety of HELIX LACTEA, Mull., with which I compared it when describing it. I have a shell from Rio Janeiro, presented by Mr. T. Peale, that corresponds in all its character with the latter species. Mr. Hyde also sent me the same shells, from near Buenos Ayres, so that the *lactea*, like the *aspersa* and some of the smaller species, seems to be very widely distributed.

MELANIA SEMICARINATA, nob., pl. 47, add to the synonyms of this species, *M. acuta*, Trans. Amer. Philos. Soc. vol. 4, N. S.

VALTATA ARENIFERA, Trans. Amer. Philos. Soc. vol. 4, N. S. In the Wissihickon and other streams of water in the vicinity of Philadelphia is the larvæ of a common insect belonging to the Linnæan genus *Phryganea*, which constructs a spiral follicle precisely similar to the description and figure above referred to, excepting, of course, that it is destitute of operculum, which the author says, in two of his specimens was "sufficiently perfect to exhibit a striated horny structure." The operculum seems to have been imperfect in both specimens, and we fear that a mistake may have been made, and that the *V. arenifera*, is in reality only the follicle of a larva and not the production of a molluscous animal. It would be easy to make the necessary comparison, as the follicle is well known to most of the conchologists of that city.

CARACOLLA HELICOIDES, ibid. is a variety *a* of *Helix palliata*, S., *H. denotata*, Fer.

HELIX CAROLINENSIS, ibid. corresponds by description and figures with *H. appressa*, S., var. *a*.

MELANIA TUBERCULATA, ibid. is a variety of *M. stygia*, S.

MELANIA ELONGATA, ibid. seems very closely related to *M. elevata*, S., and may probably prove to be the same.

[Amer. Conch. p. vii.]*

DONAX VARIABILIS, *nob. Journ. Acad. Nat. Sci., vol.* 2, *p.* 305. *Pl.* 61, *f.* 1.

DONAX FOSSOR, *nob. Journ. Acad. Nat. Sci., vol.* 2, *p.* 306. *Pl.* 61, *f.* 2.

CYRENA CAROLINENSIS, *Bosc. Say.—Nicholson's Encyclopedia,* (*3d American edition,*) *article Conchology.*

Obs. It inhabits Mobile Bay, in the vicinity of Mobile, Alabama, and occurs fossil in the Newer Pliocene of North Carolina, near Newbern.—ED.† Pl. 62.

VENUS ALVEATA.—*Desc.* Shell ventricose; valves very thick, subtriangular, cordate, with eight remarkably thick, very prominent, much recurved, transverse approximate ribs, of an uniform thickness throughout, terminating abruptly at their anterior slope which is much impressed; lunule cordate, included by an impressed line.

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* [No date is given for this part. It was printed after Mr. Say's death, which occurred in Sept., 1833.—ED.]

† [T. A. Conrad.]

Venus alveata, Conrad. Journ. Acad. Nat Sci., vol. 6, *p.* 264, *pl.* 11, *fig.* 14, 15.

Venus paphia ? Lam. Anim. Sans. Vert., vol. 5, *p.* 608.

Obs. For an opportunity of examining this interesting species I am indebted to Dr. Ravenel, who informs me that he obtained it on Sullivan's Island, near Charleston, S. C. It differs from *V. paphia*, Linn., in not having the ribs abruptly smaller before they reach the anterior slope; and it does not agree with the figure in the Encyc. Meth. of *V. fasciata.* Although probably recent, the specimen has very much the appearance of a fossil, and this circumstance, combined with its character, leads me to believe that it is the *V. paphia*, Lam., but certainly not that of Linné. Pl. 63.

Having examined the specimens sent to Mr. Say, I find them to be fossil shells. The species is characteristic of the Older Pliocene formation, and occurs at Wilmington, N. C.; St. Mary's river, Maryland; and City Point, Virginia.—Ed.*

TELLINA BREVIFRONS.—*Specific character.* Ovate, white, tinged with yellowish; anterior side very short.

Desc. Shell thin and fragile, not very convex, white, tinged, particularly on the umbo, with pale dull fulvous; with transverse slender striæ, and, in a particular light, obsolete longitudinal striæ are visible; beaks much anterior to the middle, forming an angle in consequence of the anterior and posterior hinge margins being rectilinear to a considerable distance, the latter parallel to the base; anterior side short and abrupt, rounded at tip, and with a submarginal undulation; posterior side more than as long again as the anterior, rounded at tip; within much more deeply colored with fulvous; cardinal teeth, two in the left valve and one in the right valve; lateral teeth none.

Obs. Inhabits the coast of South Carolina.

The outline of this shell corresponds with *T. donacina*, Lin., but is more convex, and not radiated with reddish. Dr. Ravenel informs me that it is very rare. He obtained but a single specimen, which he obligingly sent to me for examination. It also resembles *T. decora*, Say, and may readily be mistaken for it, but is altogether destitute of oblique striæ and rosaceous radiations. Pl. 64, fig. 1.

***[T. A. Conrad.]**

TELLINA MERA.—*Specific character.* Ovate-orbicular, transversely striated, hinge anterior to the middle, bidentate, with a lateral tooth in one valve.

Desc. Shell small, thin, white, not very convex, somewhat regularly striated transversely; beaks forming a rather prominent angle; anterior side with an obvious undulation, and rectilinear as far as double the length of the ligament; at tip rounded; ligament rufous; posterior side nearly rectilinear half the distance from the beaks to the middle of the tip, which is regularly and obtusely rounded; basal margin obtusely and regularly arquated; hinge with two primary teeth in each valve; posterior tooth small and triangular; anterior teeth thicker, obtuse and with an impressed line on its summit; a single prominent lateral triangular tooth in the left valve; sinus of the palleal impression remarkably large, in its posterior curvature almost confluent with the tip of the muscular impression.

Obs. Inhabits the coast of South Carolina.—Dr. Ravenel.

In a particular light it has a slight appearance of longitudinal lines. Pl. 64, fig. 2.

TELLINA ALTERNATA.—*Jour. Acad. Nat. Sc., vol.* 2, *p.* 275.

Obs. It is abundant in the Upper Tertiary or Newer Pliocene beds near Newbern, North Carolina.—ED.* Pl. 65. fig. 1.

TELLINA POLITA, *nob.—Jour. Acad. Nat. Sc. vol.* 2, *p.* 276. *Pl.* 65, *fig.* 2.

TELLINA TENTA.—*Specific character.* Rostrum curved to the left; no lateral teeth.

Desc. Shell transversely oblong-ovate, fragile, a little compressed, white, with a tinge of dull yellowish towards the umbones; wrinkles ofgrowth not very prominent, but more obvious on the anterior side; beaks a little before the middle, not much elevated; anterior side narrowed, curved to the left, at tip truncated or obviously emarginate; umbonial slope hardly elevated; within with an obsolete appearance of radiating lines; lateral teeth none; cardinal teeth in the left valve prominent; a tinge of dull yellowish on the disk as on the exterior.

Obs. Inhabits the coast of South Carolina.—Dr. Ravenel.

The proportions of length and breadth is nearly that of *Tellina*

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*[T. A. Conrad.]

nitida, Poli, but the beaks are rather more anterior. The anterior side is a little more obtuse than that of *T. pulchella*, Lam., and a little more curved to the left nearer the tip. It evidently resembles *T. depressa*, Gmelin, but I cannot perceive any lateral tooth. Pl. 65, fig. 3.

TELLINA TENUIS, Da Costa.—*Specific character.* Shell oval-triangular, irregularly striate concentrically; each valve with two teeth, and one of them with lateral teeth.

Tellina tenuis, Da Costa, Brit. Conch., p. 210. *Chem.* 6, *p* 124, *tab.* 12, *fig.* 117. *Donavan, i. tab.* 19, *three lower figures. Penn. Brit. Zool.* 4. *p.* 180, *tab.* 51, *fig.* 2. *Mont. Test. Brit., p.* 59. *Turton, Brit. Fauna, p.* 150. *Wood, Conch. p.* 155, *tab.* 44,. *figs.* 3 *and* 4. *Conch. Dict., p.* 169. *Conch. Ins. Brit., p.* 107.

T. levis, List. Conch., t. 405, *fig.* 251.

Obs. There may frequently be observed some very minute and fine longitudinal white lines, from which circumstance it has been often mistaken for *T. striata;* but the lateral teeth will at all times distinguish it, there being two small lateral teeth in one of the valves only. We believe that the *T. balaustina* and *T. planata* of Linnæus are among the numerous varieties of this species.—(Turton.)

I have copied the above from Turton's "Bivalves of the British Islands," believing our shell to be the *tenuis* of authors. Mr. Say, unfortunately, has left no description of this species, which was sent to him by Professor Ravenel of Charleston, who found it on the shore of Sullivan's Island.—ED.* Pl. 64, fig. 3.

ARCA ZEBRA, Swain.—*Specific character.* Margins angulated; valves marked with simple uniform and regular grooves, radiating from the umbones; shell transversely and obliquely striped with brown.

Arca zebra, Swainson. Zool. Illus., No. 26, *pl.* 118.

Obs. Inhabits the coast of the peninsular of Florida.

Mr. Swainson has separated this species from the ARCA NOÆ of authors, and refers it to his subgenus *Byssoarca*. He observes: "The animals of these shells affix themselves to other bodies by a particular muscle, which is protruded through the gaping part of the valves; they also adhere, when young, by the byssiform epidermis which covers the exterior. A specimen now before us, which we procured in the bay of Naples, exemplifies this singular property. The present species is not uncommon in the West Indies, and has been sent to us from Jamaica. Like all others of this particular type, it is almost constantly covered with coralline substances." Pl. 66.

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*[T. A. Conrad.]

UNIO TRUNCATUS, Raf.—*Desc.* Shell triangular, very convex, gaping a little at the posterior extremity; posterior lunule distinct; anterior margin very much flattened, forming a right angle with the disk; disk with an indented groove on the posterior side, extending from beak to base; anterior tip truncated; ligament slope slightly grooved; basal margin dilated in the middle; anterior margin slightly retuse; epidermis olive yellow, radiate with green, interrupted into short lines and spots generally sagittate; within white or rose-color; cardinal teeth large and prominent; muscular impressions small; anterior impressions oval, impressed.

Unio truncata, Raf. Ann. gem. des Sc. Phys., vol. 5. *Poulson's translation, p.* 31.

Unio elegans, Lea. Trans. Amer. Phil. Soc., new series, vol. 4, *p.* 83, *pl.* 9, *fig.* 13.

Obs. This shell inhabits the Wabash, Scioto, Ohio and other western rivers. Pl. 67.

UNIO LINEOLATUS, Raf.—*Specific character.* Subtriangular, disk and umbo much depressed; beaks simple, prominent.

Unio lineolata; Unio depressa, (young,) Raf. Ann. gen. des Sc. Phys., vol. 5. *Mr. Poulson's translation, p.* 35.

Unio securis, Lea. Trans. Amer. Phil. Soc., new series, vol. 3, *p.* 437, *pl.* 11, *fig.* 17.

Desc. Shell subtriangular, surface brownish-yellow, with numerous slender green radii and broader distant radii, frequently composed of series of angular dark spots, with pale intervening spaces; disk and umbo much compressed; beaks simple, prominent, in the young acute at the apex; anterior side subcuneiform; anterior margin regularly arquated, very much flattened, forming a right angle with the disks; posterior side short, obtusely rounded at tip; within white; cardinal teeth very large, profoundly sulcated and striated; lateral teeth inclining to be double in each valve.

Obs. This species is common in the Ohio, Alabama, and Black Warrior rivers. Pl. 68.

APPENDIX. [By T. A. CONRAD.]

Among Mr. Say's manuscripts I find the following observation and description of a new species of *Chiton*, which it is deemed proper to publish at the present opportunity.—ED.

VENUS CINGENDA, Dillw.

VENUS CANCELLATA, Lam.

Having obtained numerous specimens of this variable shell, I find that my *V. elevata* must be placed as a variety of it.

CHITON APICULATUS.—Valves eight; dorsal triangles with series of elevated points; lateral triangles with scattered elevated points.

Inhabits the coast of South Carolina.

Whitish; oval-oblong, convex, subcarinated; eight valved; anterior valve with numerous, separate, elevated, equal, sub-equidistant points; the six following valves have on their dorsal triangles from twenty to thirty longitudinal series of equal, elevated, approximate rounded points; their lateral triangles with elevated points, as on the anterior valve; posterior valve at base like the dorsal triangles, and its broad margin with the points like those of the anterior valve. Length nearly half an inch.

This very pretty species was sent to me from Charleston by Dr. Ravenel, of that city, who informs me that it is so rare that he has not found more than this specimen, which he has been so liberal as to present to me. The regular, longitudinal series of elevations on the dorsal triangles, resemble so many minute strings of pearl.

[ADDENDA.]

[The following generic descriptions were omitted in the "Descriptions of Terrestrial Shells."—ED.]

Genus HELIX.*—Shell subglobose, suborbicular, broader than long, spire convex; aperture wider than long, diminished above by the convexity of the penultimate whorl.

Obs. The shells belonging to this genus are terrestrial, often inhabiting moist places; they are thin, brittle, and translucent; the young shells are umbilicate almost invariably.

Genus PUPA.†—Shell spiral produced. Aperture contracted,

[* Nicholson's Encyclopedia.—ED.]

[† Nicholson's Encyclopedia 3d ed. Odostomia of 1st and 2d. ed.—ED.]

subangular, generally distinct, and sometimes separate from the body whorl, and usually furnished with teeth.

Obs. The shells belonging to this genus have been divided, with much propriety, from the Linnæan genus *Turbo;* they inhabit moist places, under the bark of trees, under stones, moss, &c.; many of them are sinistral.

HELICINA.*—Shell subglobular; spire depressed, or but little elevated; aperture semiorbicular, modified by the preceding volution; base with a more or less obvious callosity covering the umbilicus; labrum acute or a little reflected; columella at base a little prominent, and joined to the labrum at an angle; operculum horny, and with concentric elements.

Animal terrestrial, globular, subspiral; head rostrated; rostrum bilabiated, at the tip end shorter than the tentacula, which are two in number, filiform, and have the prominent eyes at the exterior part of their base, upon a tubercle; the organs of respiration as in *Cyclostoma*; the branchial cavity communicates with the atmosphere by a large slit; foot simple, with an anterior marginal groove.

Obs. The general appearance of the shell resembles much that of a *Helix*, but the base of the columella is a little prominent, and the locality of the umbilicus is more obviously covered with a callus. But the most striking difference is in the animal, which in *Helix* has the eyes at the tip, of the superior pair of tentacula, whereas in *Helicina* they are at the exterior base of the only pair; the operculum of the latter is also a sufficient distinction.

Lamarck formerly united several species under this genus that he has since very properly separated under the name of *Rotella*, (*Pitonillus*, Montf.,) as being inhabitants of the ocean, with a much dilated basal callus. This union led me to form my genus *Oligyra* for the reception of one of the following species, well knowing it could not be naturally congeneric with the Linnæan *Trochus vestiarius*, the type of that genus.

In the Zoological Journal, for 1824, Gray has described fifteen species, which he disposes in several minor groups; but Ferrussac states, that he possesses from twelve to fifteen species which seem to be unknown to Gray, some of which he could not refer to either of those groups. Notwithstanding the variations and transitions of the species, it may be found convenient and even natural to sepa-

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[* Am. Con. v.—Ed.]

rate generically those in which the fissure is very obvious, in the labrum, under the name of *Helicina*, from those of which the labrum is simple or nearly so; and to the latter the name of *Oligyra* ould be retained, under which name I described the animal, till hen entirely unknown.

GLANDINA.—Shell subturriculated, oblong-suboval, somewhat fragile, terrestrial, simple; front of the shell gradually attenuated o the base of the columella; aperture unarmed, rather narrow, nearly longitudinal; labrum simple, a little undulated; columella incurved, truncated at base.

Obs. Conchologists differ much in the arrangement of this small group of shells. Chemnitz refers them to *Bulla*, and *Buccinum*; Gmelin and Dillwyn to *Bulla*, *Helix* and *Voluta*, and the former has even placed one specimen in *Strombus*; Bruguière to *Bulimus*; Blainville and Sowerby to *Achatina*; and Ferussac to a subgenus of *Helix*. Montfort who, for the period in which he published, formed genera with a profuse hand, was the first to separate this group from all others. He distinguished it by the name of *Polyphemus*, which we regret that we cannot adopt, inasmuch as it was preoccupied by Muller for a genus of Crustaceous animals, and is still in use. It is to Schumacher that we are indebted for the present generic name, to which we are not aware of any objection. With respect to the characters of the shell, there can be no doubt that *Glandina* is very closely allied to *Achatina*, and notwithstanding the difference which really exists in the general habit, in the labrum a columella, it would coalesce with it, were it not that the inhabitant possesses characters which cannot justify the union. Ferussac was aware of these distinctions, and after extracting what we formerly published relative to the characters of the animal, he states, "Si cependant on les reconnoît dans toutes les autres especés du groupe auquel elles appartiennent, ou devra en faire un genre àpart, où l'aiguillette et quelques unes des espèces analogues, que nous y réunissons, entreront par l'influence des rapports généraux de leur coquille," and "De toutes les espèces que nous réunissons dans les hélix, aucunes, sans doute, n'offrent des caractères dissemblance aussi prononcés."

Having unfortunately mislaid a sketch of the animal, taken

[* Am. Con. ii.—Ed.]

during a visit to Florida, I can now only repeat my description of it as published in Mitchell's edition of Nicholson's Encyclopedia. Animal elongated, as long again as the shell, granulated; tentacula four, superior ones oculiferous, abruptly deflected at tip, beyond the eyes; inferior ones much shorter, and abruptly deflected at tip; lips beneath the tentacula retractile, generally more or less recurved, compressed, attenuated, and acute at tip, and forming a considerable interval between their prominent bases. When the animal is in motion, the elongated lips are used as tentacula to feel the way.

HELIX.*—Shell univalve, free, subglobular, convex or somewhat conic. Aperture entire, wider than long, more or less oblique, a little contracted by receiving a part of the convexity of the preceding volution, which also widely separates the lips.

Animal hermaphrodite with four retractile tentacula, which are filiform or cylindrical; anterior pair short; posterior pair much longer, oculiferous at tip: spiracle on the right side of the neck, near the anus, and another pore which contains the organs of reproduction; they respire air only.

Obs. This is a universal, and if I may use the expression, a cosmopolite genus. The species are exceedingly numerous; in favorable situations some of them are multiplied almost to infinity, and become very destructive to cultivated plants. So formidable are they in this respect in some parts of Europe, that many devices are practised to destroy them. In North America they do not multiply to an injurious extent, and I have never known a garden or an orchard in which their depredations attracted the preventive attention of the cultivator.

They attain to their greatest magnitude and beauty in tropical climates, and seem to be repelled only by the inhospitable rigor of the polar regions.

Notwithstanding this wide range over the globe, they may be recalled to mind, wherever the English language is spoken, by the name of *Snail shells*, and from their beauty and diversity of forms, many persons who at first collected them for ornament, have been led by that circumstance to devote their attention to this interesting science.

The genus *Helix*, as originally instituted by Linné, consisted of an unnatural assemblage of species of various characters, habits

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[* Am. Con. ii.—ED.]

and conformation. Those that reside on the land and respire air only by means of a spiracle leading to a cavity for respiration, lined with a plexus of pulmonary vessels, were associated with such as reside wholly in the water, and with others that are amphibious, as unlike in their external character as in their anatomical structure. It was in reality a great reservoir for Molluscous animals that correspond in some general appearances, all of which his generic definition, however comprehensive, could not include. The present more natural condition of this group is owing to the successive improvements of Bruguière, Draparnaud, Lamarck and Montfort, who removed from it various species, of which they formed the genera *Vitrina*, *Bulimus*, *Carocolla*, *Pupa*, *Scarabus*, *Succinea*, *Planorbis*, *Lymneus*, *Paludina*, *Ampularia*, *Melania*, *Janthina*, *Sigaretus*, *&c.* Many of these Ferussac has again restored to the genus *Helix*, forming various subgenera under new names which he has applied to them. Lamarck, as he has limited the genus, describes one hundred and seven species of his own collection; but Ferussac, whose boundaries are more comprehensive, being founded on the characters of the animal, enumerates five hundred and forty-four.

To a species of this genus, common to Europe and a part of North America, the *H. aspersa*, Muller, sanative qualities were formerly attributed in diseases of the lungs, and Sir Kenelm Digby introduced them into England for the benefit of the afflicted. Many species are served upon the tables of the luxurious, and amongst the Romans the breeding and fattening them for food was a particular occupation. Montfort informs us that the *H. pomatia*, Linn., "is an object of commerce; at Paris, Vienna, Rochelle, in Switzerland, &c., they are taken to market, and are exported in barrels to the Antilles;" he adds "c'est un aliment sain, succulent et prolific."

Lamarck's genus *Carocolla* is much like *Helix*, but the volutions are always acutely angulated. In *Bulimus* the aperture is longer than wide, and in *Pupa*, *Clausilia*, &c., the form is cylindrical, and the labia are continuous.

ANODONTA IMBECILLIS.* Since the publication of the description of this species, Mr. O. Evans has presented me with a much larger specimen. It maintains its proportions, and is nearly 2¼ inches broad.

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*[Disseminator, Jan. 29, 1831.—ED.]

Genus SUCCINEA.—Shell oval or oblong; aperture large, oblique; columella narrowed.

Animal terrestrial, larger than its shell; tentacula four, inferior pair smaller; eyes placed at the tip of the superior tentacula; operculum none.*

ERRATA.

Page 5, 3d line, for "1818," read 1819.
15, 2d line, for "moltilineata," read multilineata.
72, 1st line, for "June," read July.
87, 18th line, for "June," read July.
98, 1st line for "June," read July.
149, 26th line, for "1836," read 1830.
160, 33d line, for "vol." read part.
216, 21st line, for "pl. 5," read pl. 57.
Plate 53, for "*rugosus*, Barnes," read *quadrulus*, Raf.
Plate 46, for "36," read 46.

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* [N. E., &c.—ED.]

INDEX

To all the Generic and Specific Descriptions of Shells of Thomas Say, and to the Synonyms used in his writings, with the name, date, volume, page, and figure of the original works containing them.

[In referring to this volume, all the pages are specified containing any notice of each species; but that on which the full description is given, is distinguished by being placed first.

The italics distinguish what Say considered synonyms in the work referred to.

The genera instituted by Say are followed by his name; the species are all Say's, unless some other authority is given. The full title of the works quoted, will be found in the preface.—ED.]

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(From Nicholson's Encycl.)

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" " 6. (LYMNÆA) PHYSA HETEROSTROPHA.
" " 7. PALUDINA SUBCARINATA.
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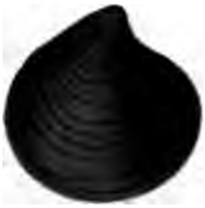
" " 4. HELIX ARBOREUS.
" " 5. PUPA CORTICARIA.

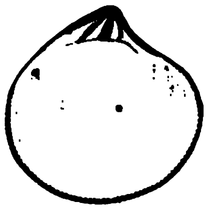
(From Long's Exp.)

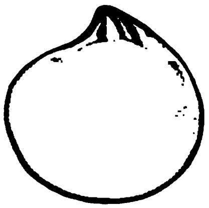
" lxxiii., lxiv. have the names of the figures.

(From a copper plate prepared by Mr. Say, but never published

" lxxv. AMPULLARIA ROTUNDATA, (*teste Haldeman.*)







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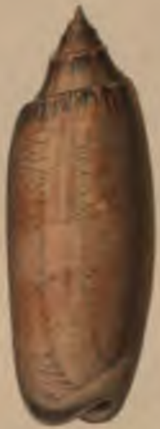

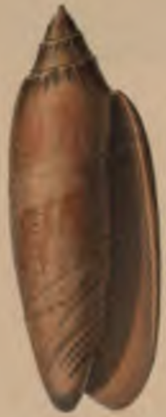

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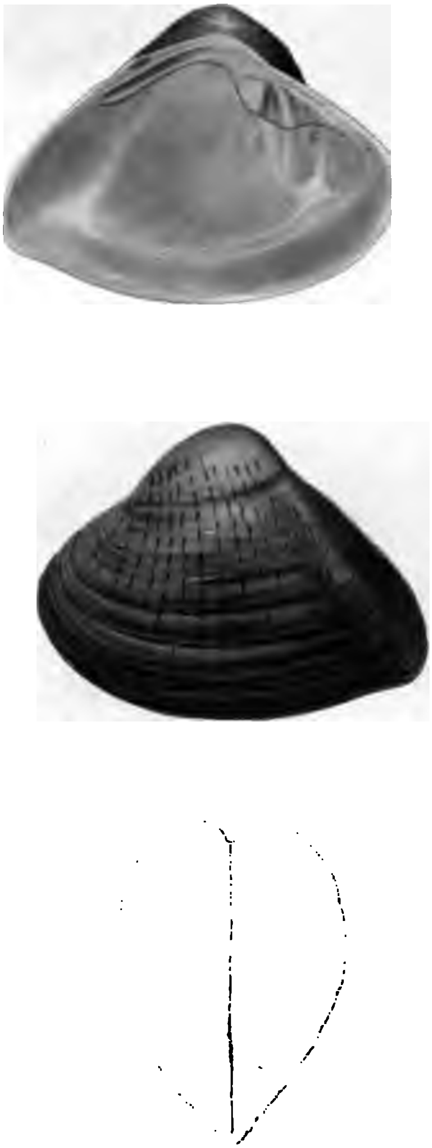

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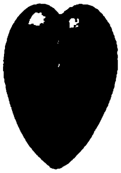

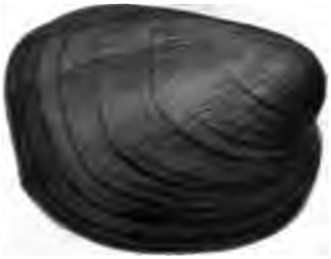

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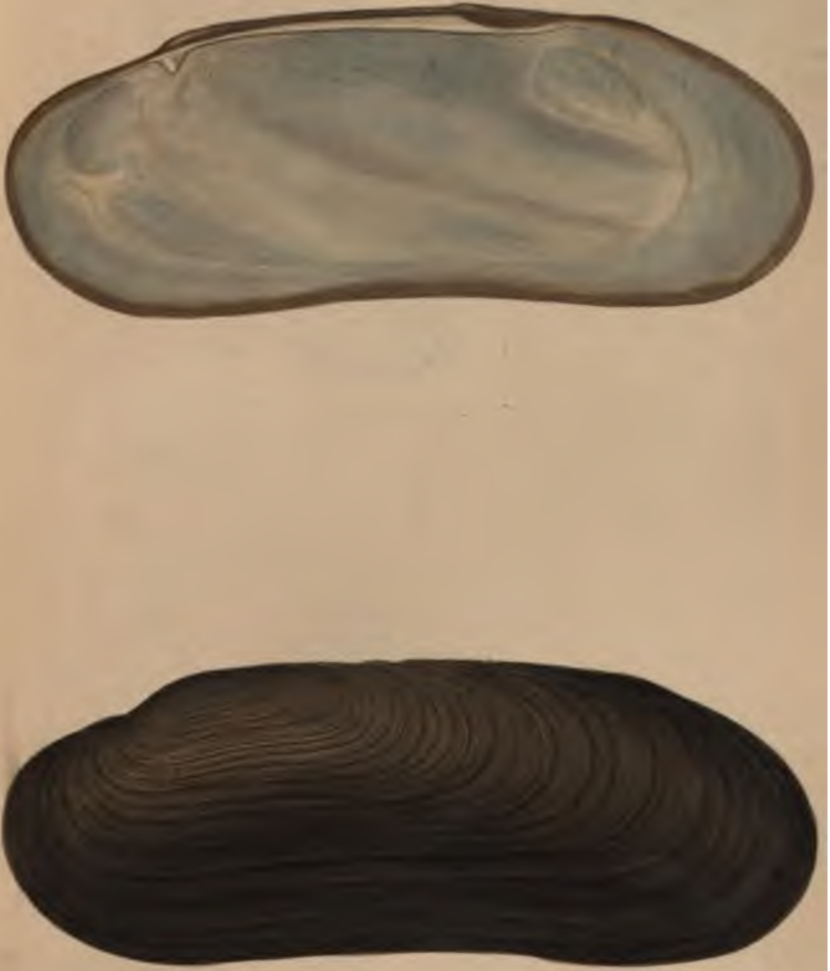

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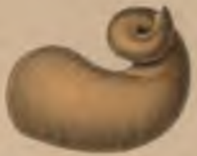

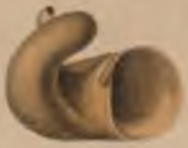

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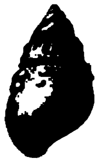

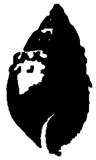

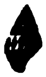

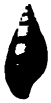

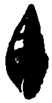

J. Say Del. 6 C. Tiebout Sculp.

Plate	xxv.	Upper figure.	Sigaretus perspectivus.
"		Lower "	" "
"		Middle "	" maculatus.
"	xxvi.		Venus grata.
"	xxvii.	Upper "	Scalaria clathrus, L.
"		Lower right	" multistriata.
"		Lower left	" lineata.
"	xxviii.	Middle figure.	Amphidesma transversum.
"		Exterior "	" æquale.
"	xxix.	Middle "	Fusus corneus, L.
"		Exterior "	" cinereus.
"	xxx.	figure 1.	Paludina ponderosa.
"		" 2.	" subpurpurea.
"		" 3.	" intertexta.
"	xxxi. to lxviii. are lettered.		

(From Nicholson's Encycl.)

Plate	lxix.	figure 1.	Helix albolabris.
"		" 2.	" alternata.
"		" 3.	" glaphyra.
"		" 4.	Planorbis bicarinatus.
"		" 5.	" parvus.
"		" 6.	(Lymnæa) Physa heterostropha.
"		" 7.	Paludina subcarinata.
"		" 8.	Unio crassus.
"		" 9.	Cyclas similis.
"		" 10.	" dubia.
"	lxx.	" 1.	Helix tridentata.
"		" 2.	Planorbis trivolvis.
"		" 3.	Lymnæa catascopium.
"		" 4.	(Paludina) Melania virginica.
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"		" 6.	" decisa.
"		" 7.	Unio ovatus.
"		" 8.	" ochraceus.
"	lxxi.	" 1.	" purpureus.
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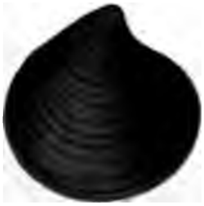
"		" 2.	" alatus.
"		" 3.	" cylindricus.
"		" 4.	Helix arboreus.
"		" 5.	Pupa corticaria.

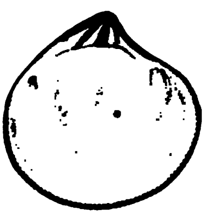
(From Long's Exp.)

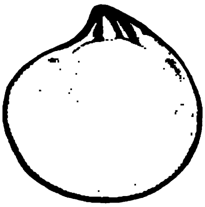
" lxxiii., lxiv. have the names of the figures.

(From a copper plate prepared by Mr. Say, but never published

" lxxv. Ampullaria rotundata, (*teste Haldeman*.)







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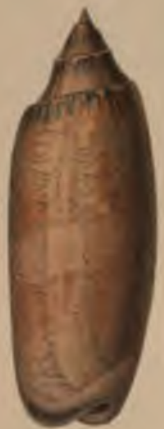

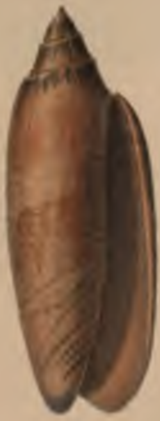

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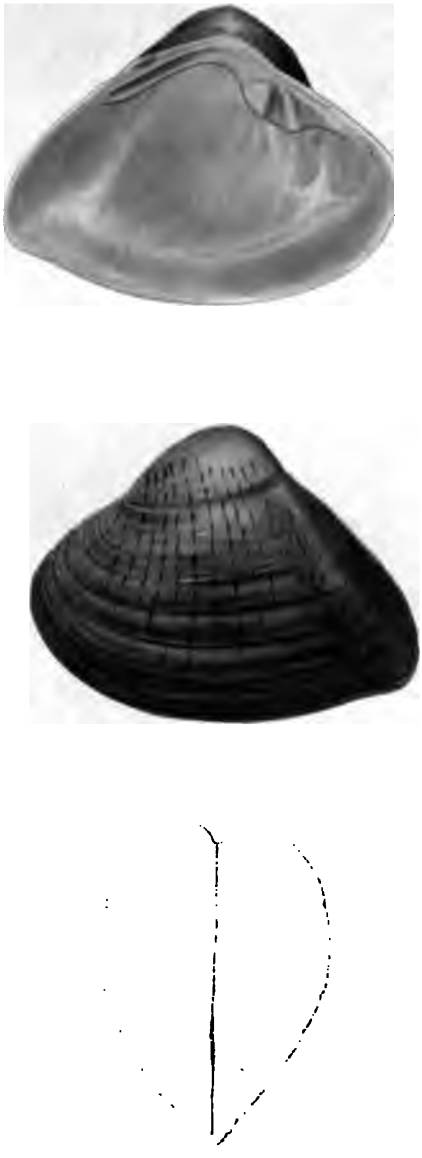

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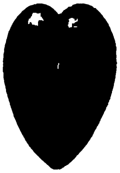

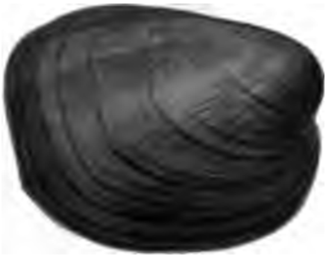

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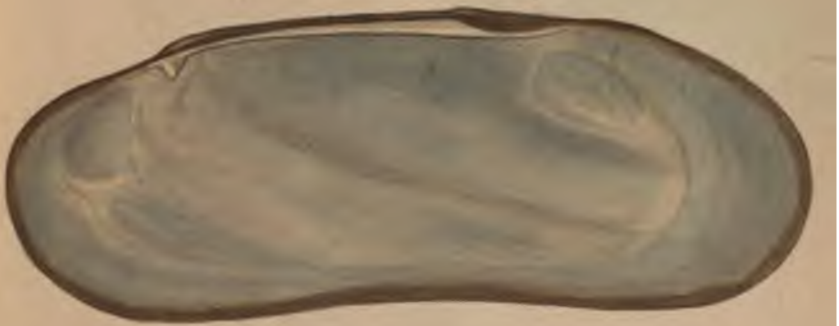

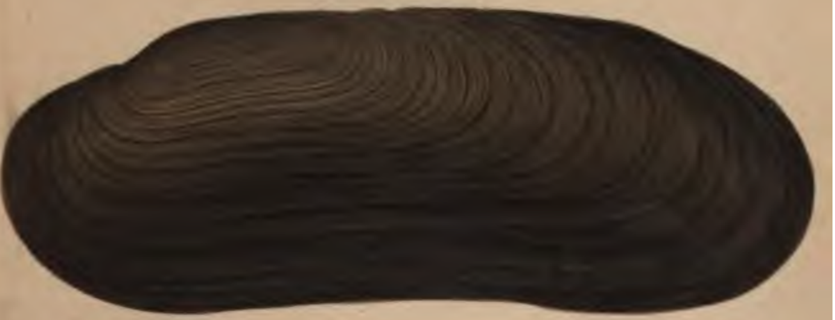

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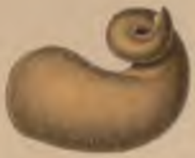

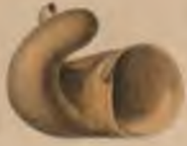

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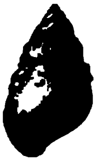

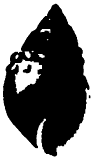

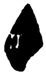

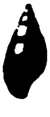

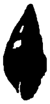

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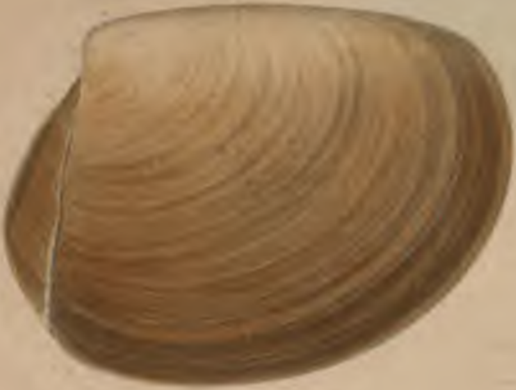

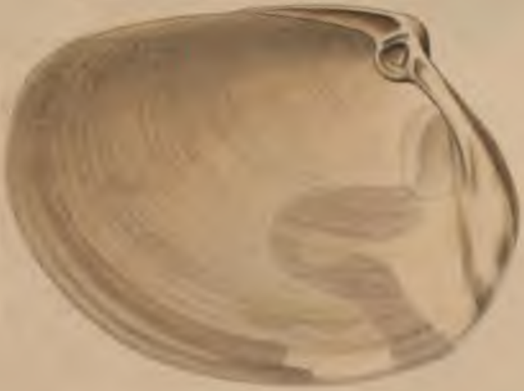

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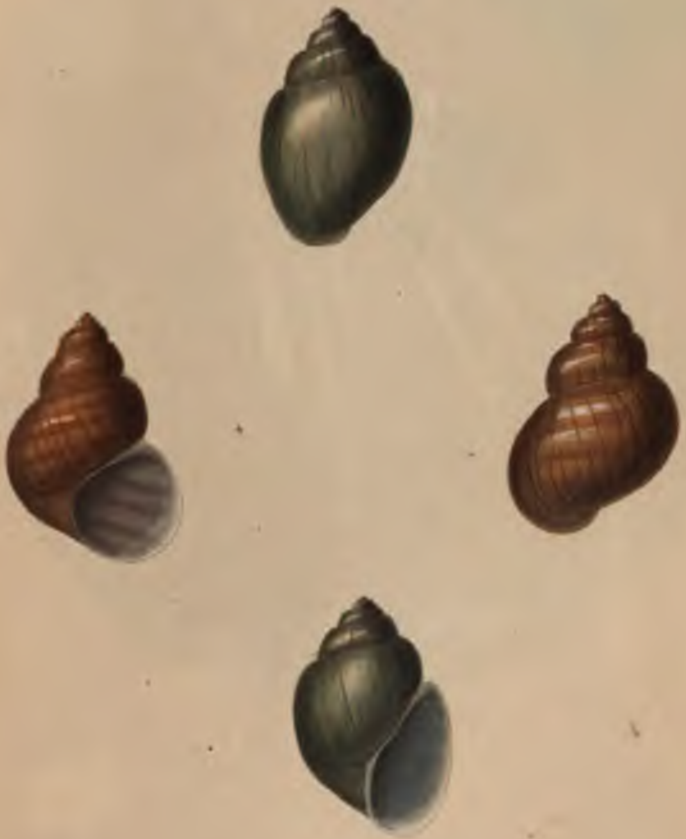

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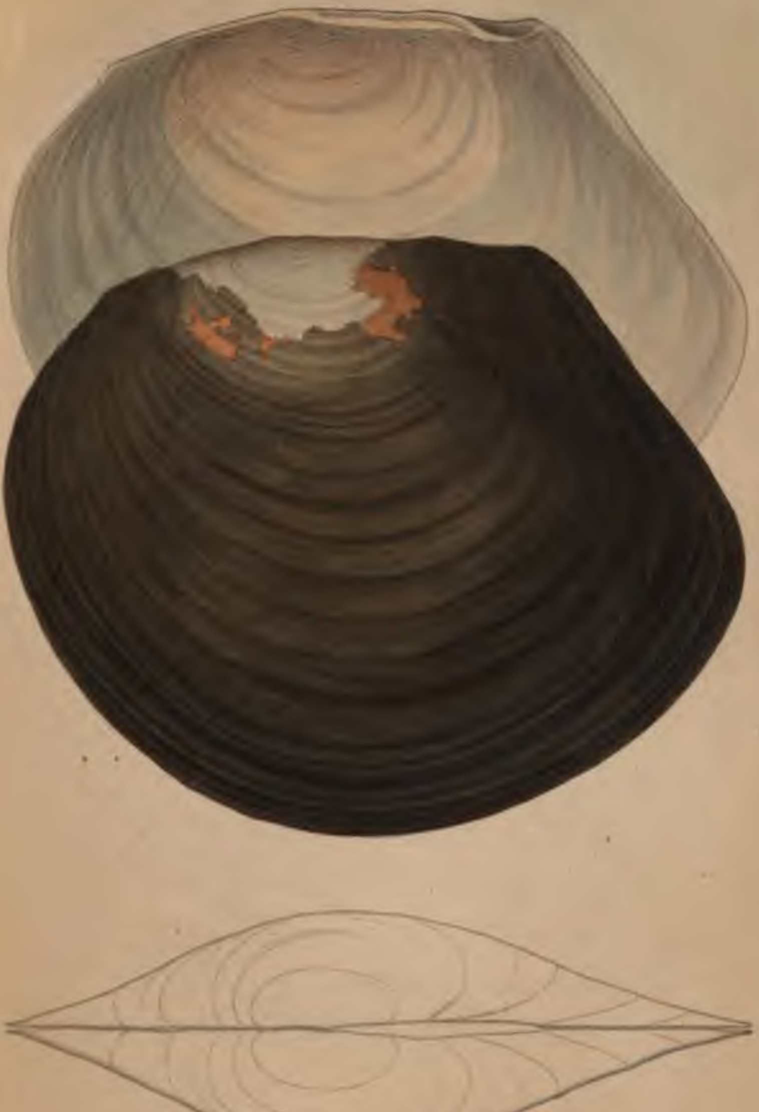

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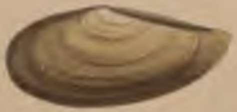

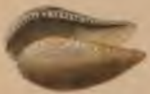

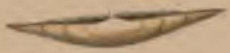

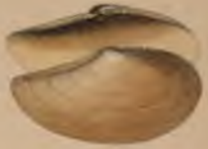

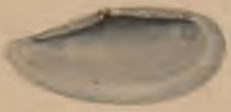

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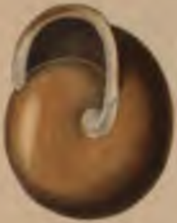
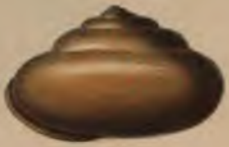
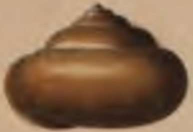
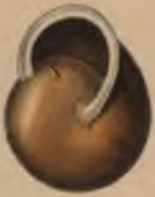
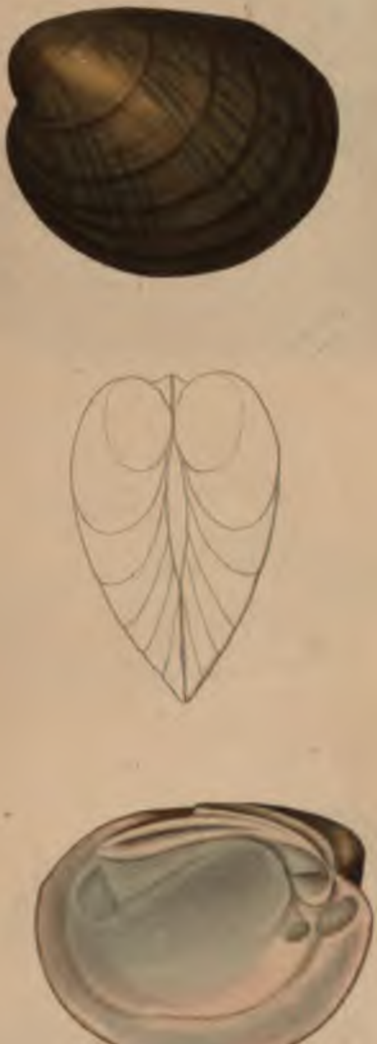








Mrs Say Del. 13 C.Tiebout Sculp



Mrs Say Del.

14

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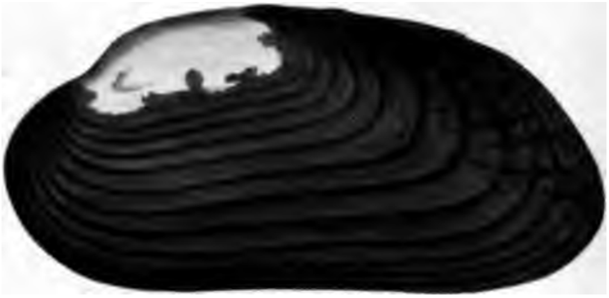

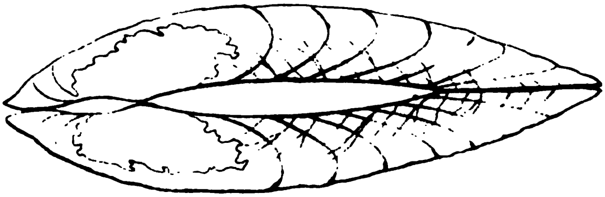

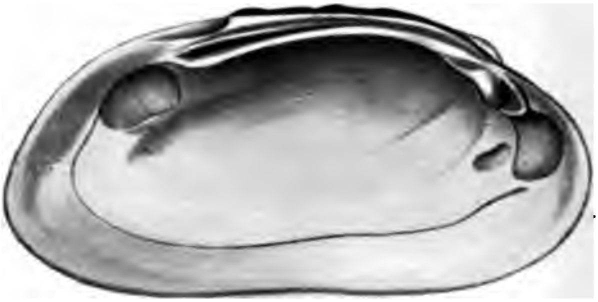

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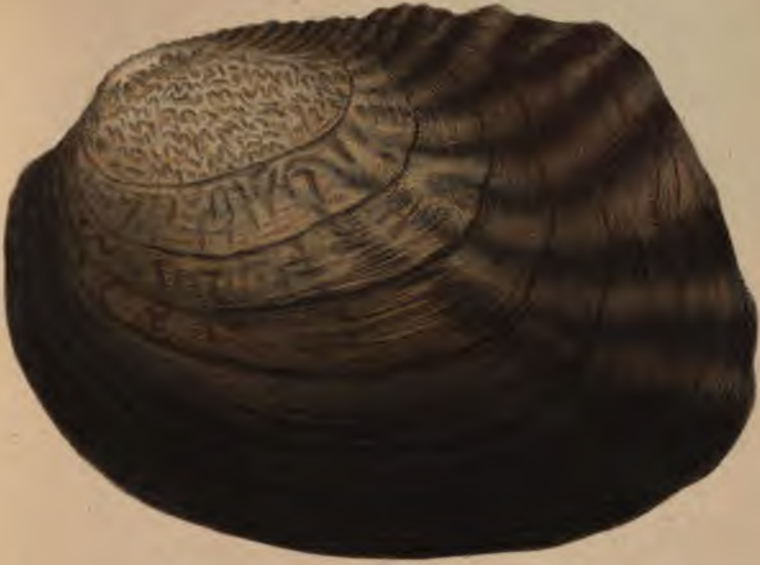
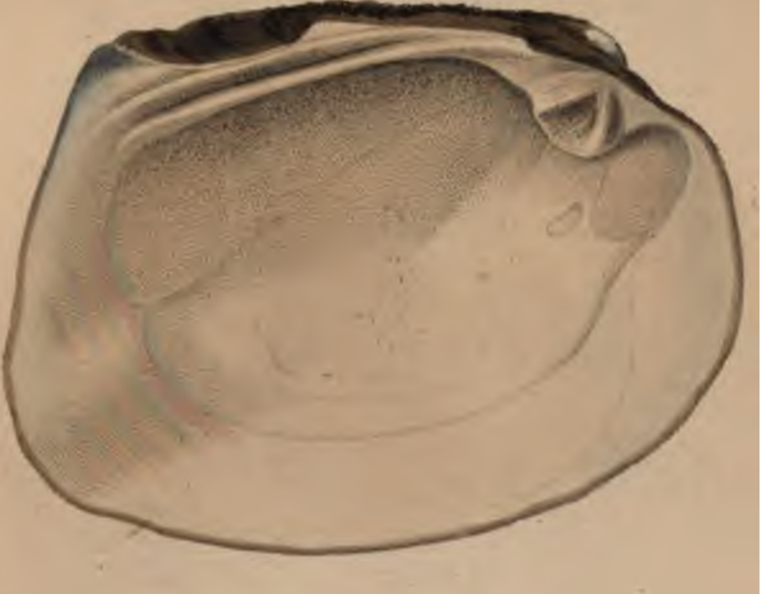
Mrs. Say del.





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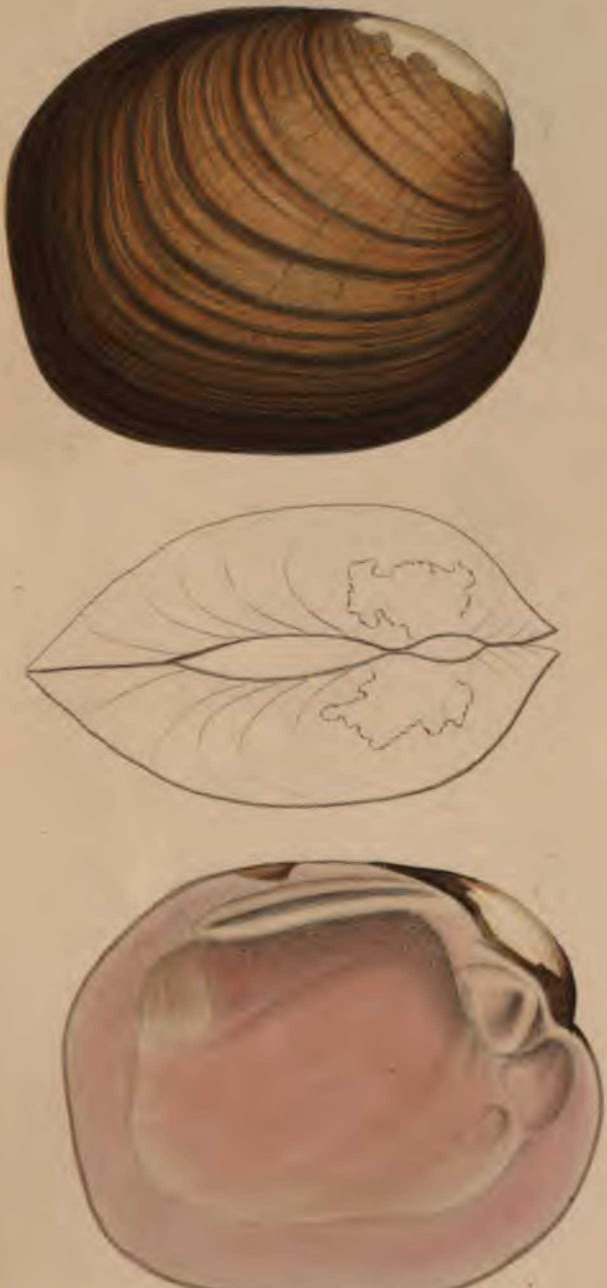
Mrs Say Del. C Tiebou



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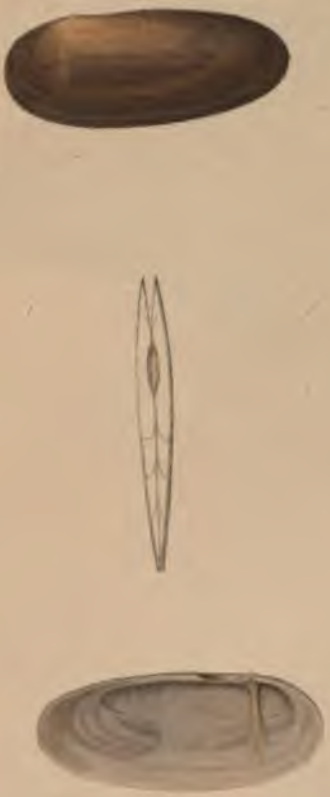
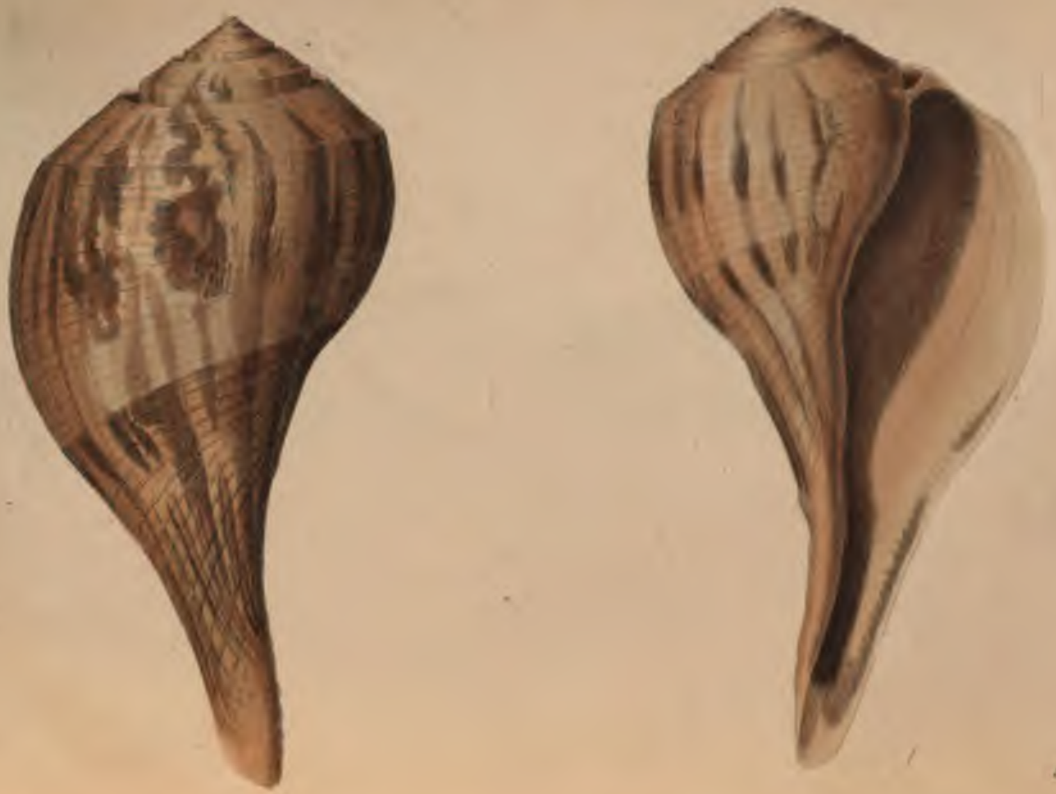


M^rs Say Del.

18

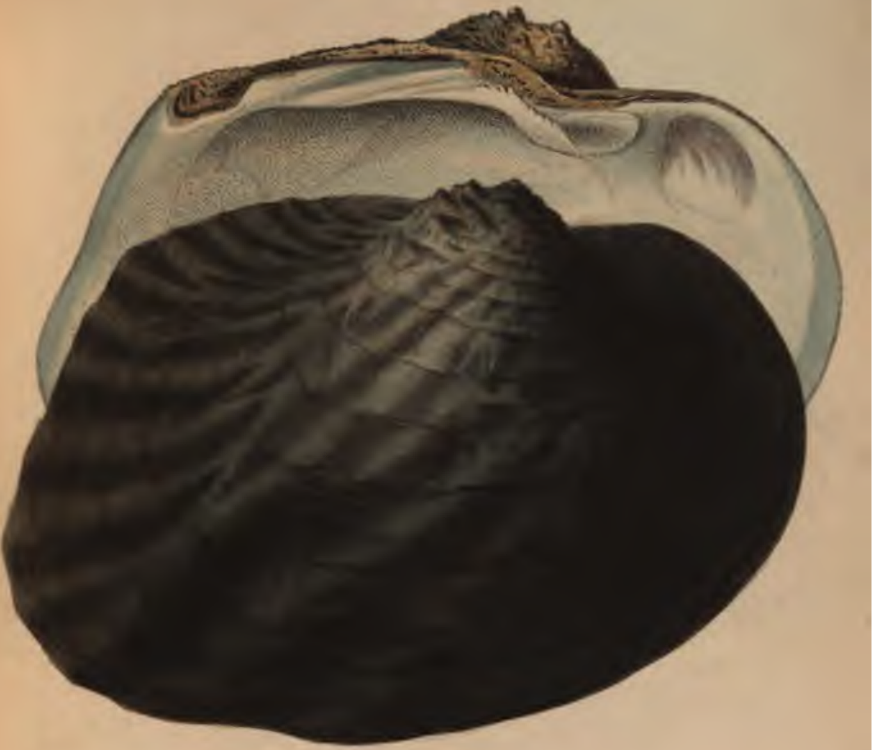
C. Tiebout S



Ly Say Del.

C. Tiebout Sculp.

Mrs Say Del. 20 C. Tiebout S



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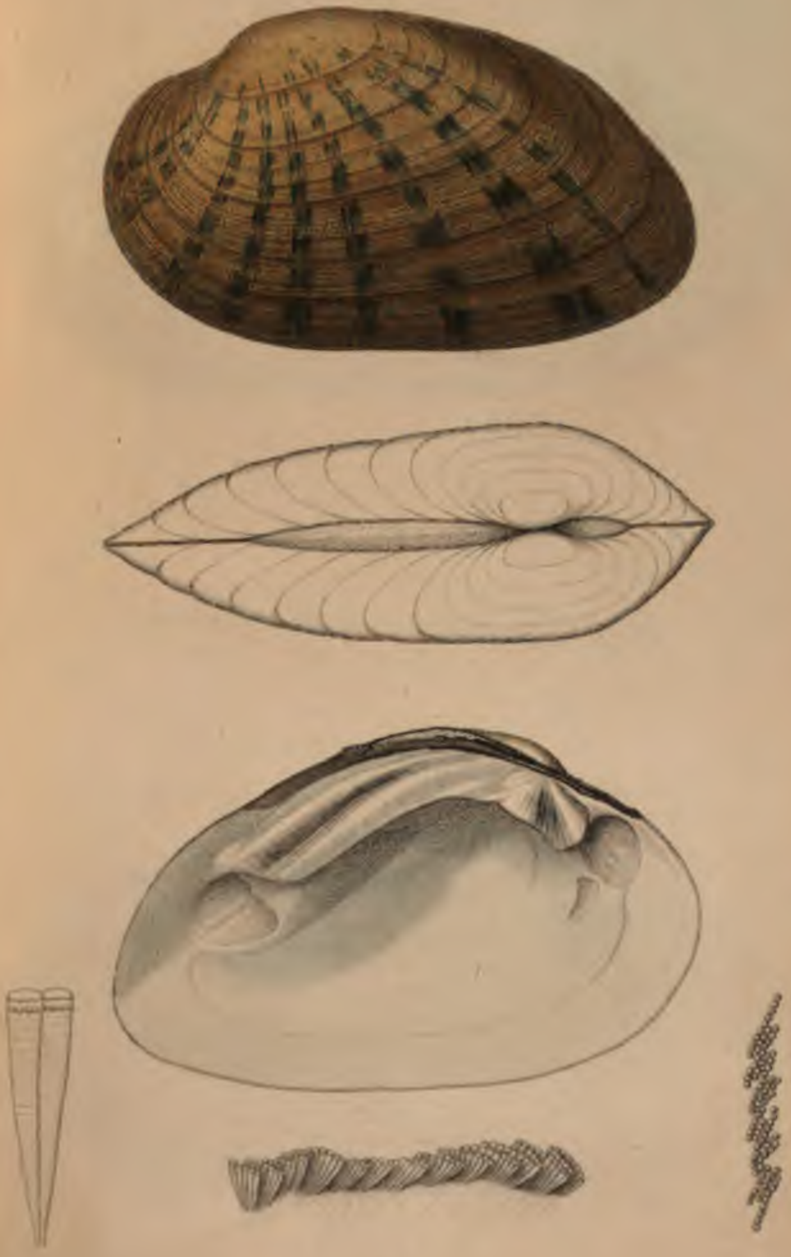
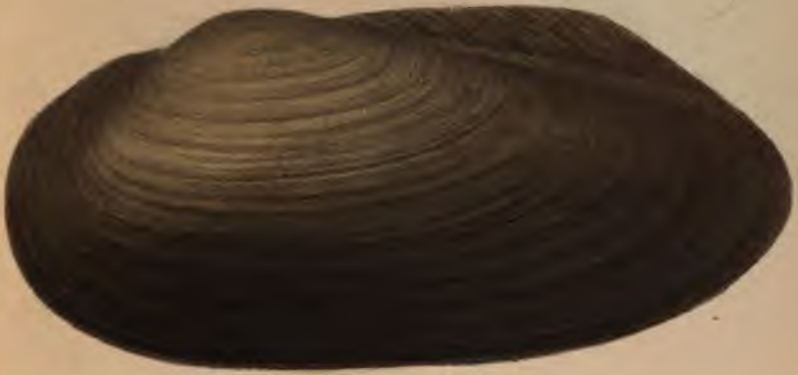
Mʳˢ Say Del.

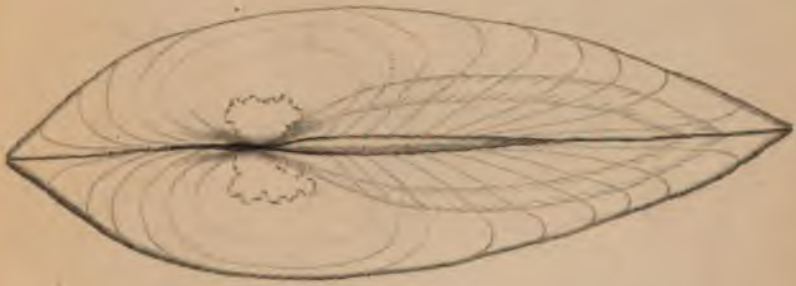


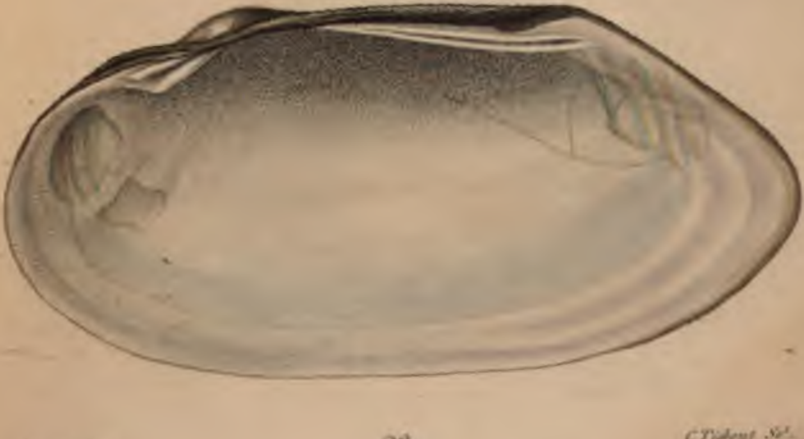
M^{rs} Say Del.

22

C. Tieb.







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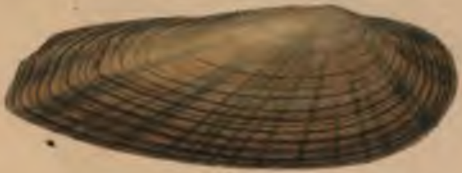
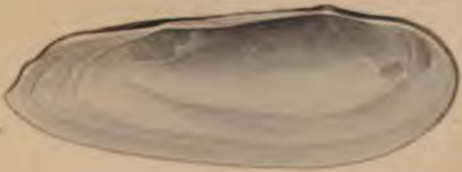
M^rs^ Say Del. C Tiebout Sc^t.

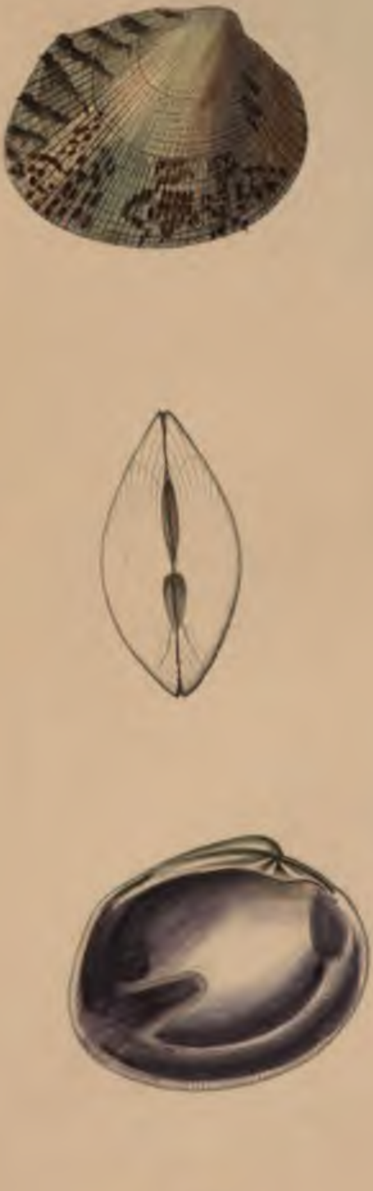




Mrs Say Del.

24

C.Tiebout Sc



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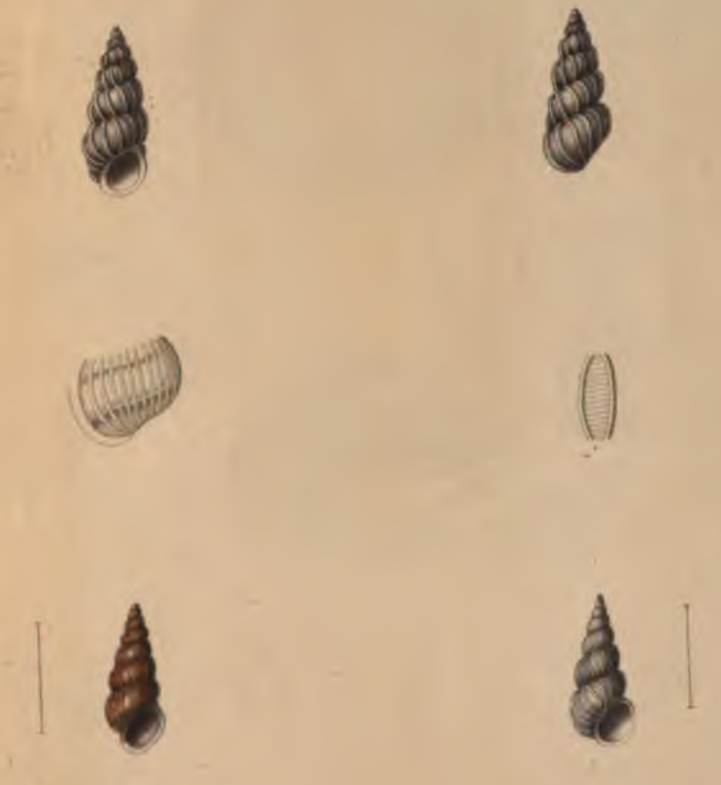
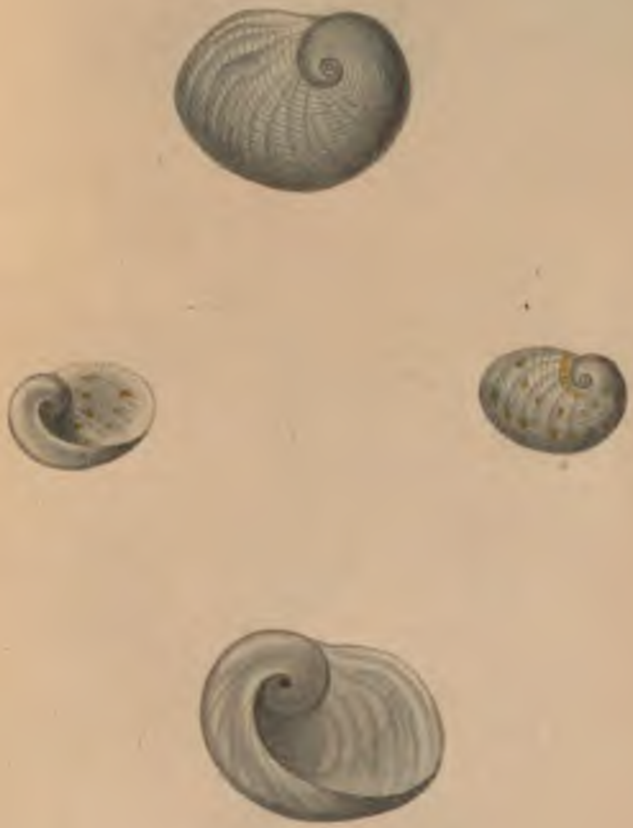
Mrs Say Del.

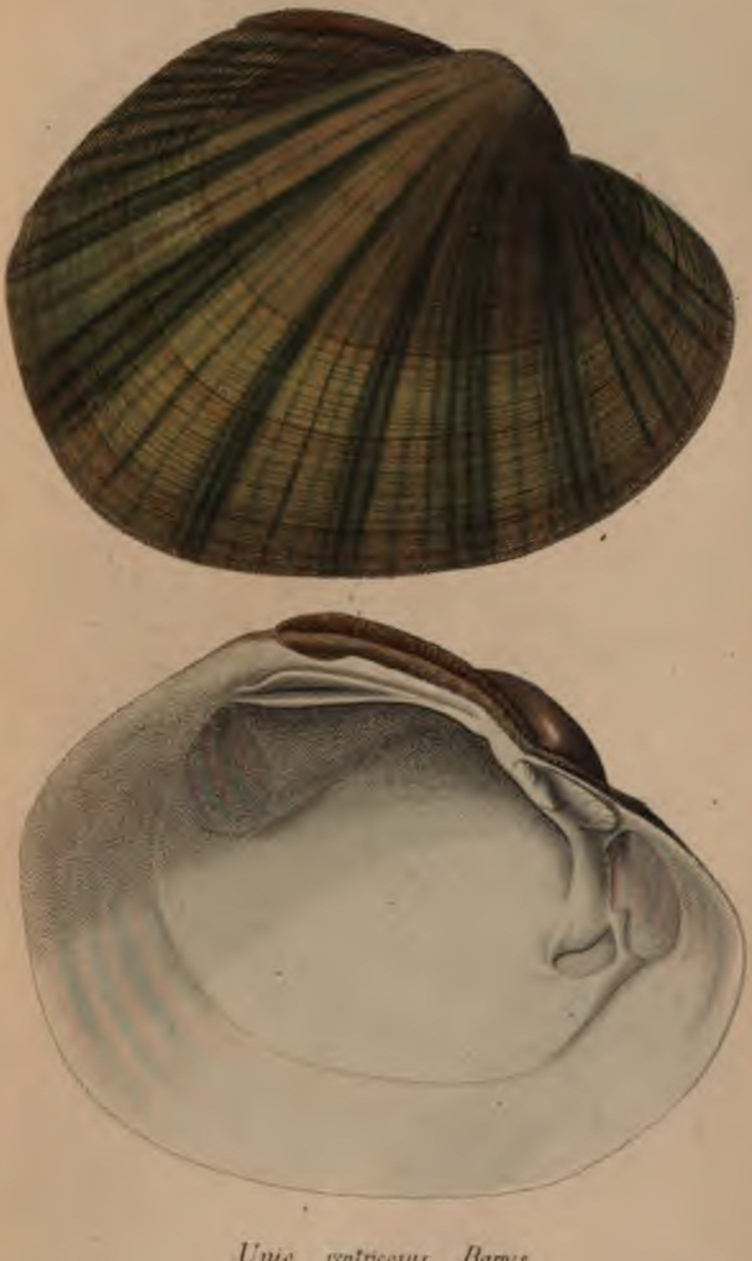
C Tiebout S



Mrs Say Del. 27 C.Tiebout Sc.

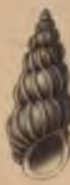


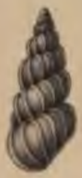
Mrs Say Del. 25 C. Tiebout Sc.

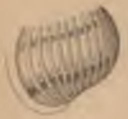


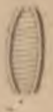
Unio ventricosus, Barnes.

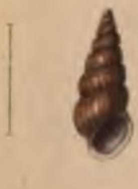
Mrs Say Del. 32 L. Lov

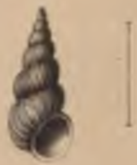




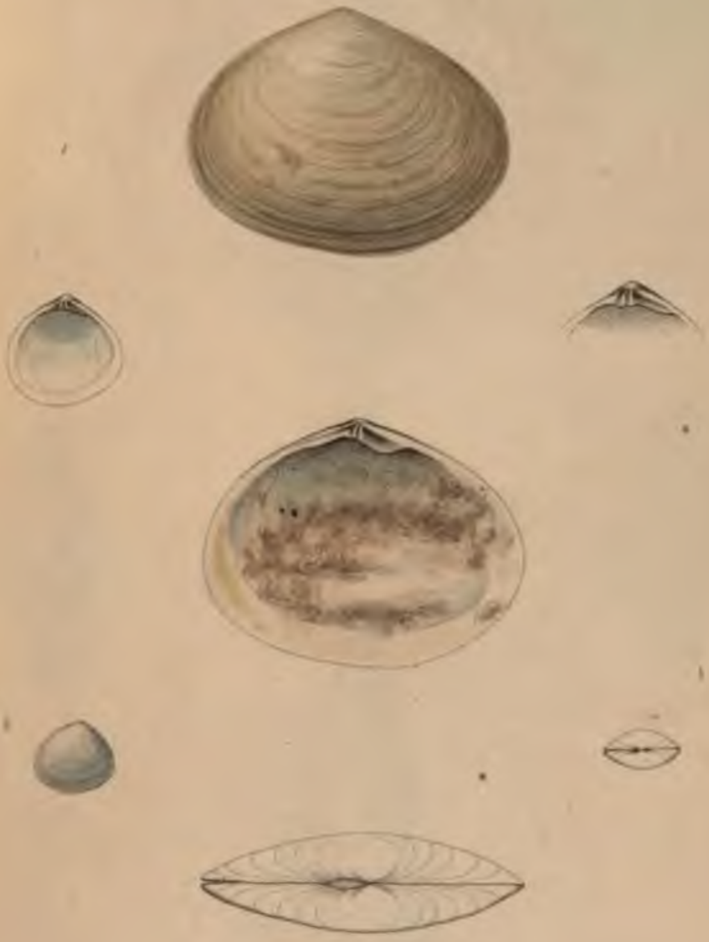




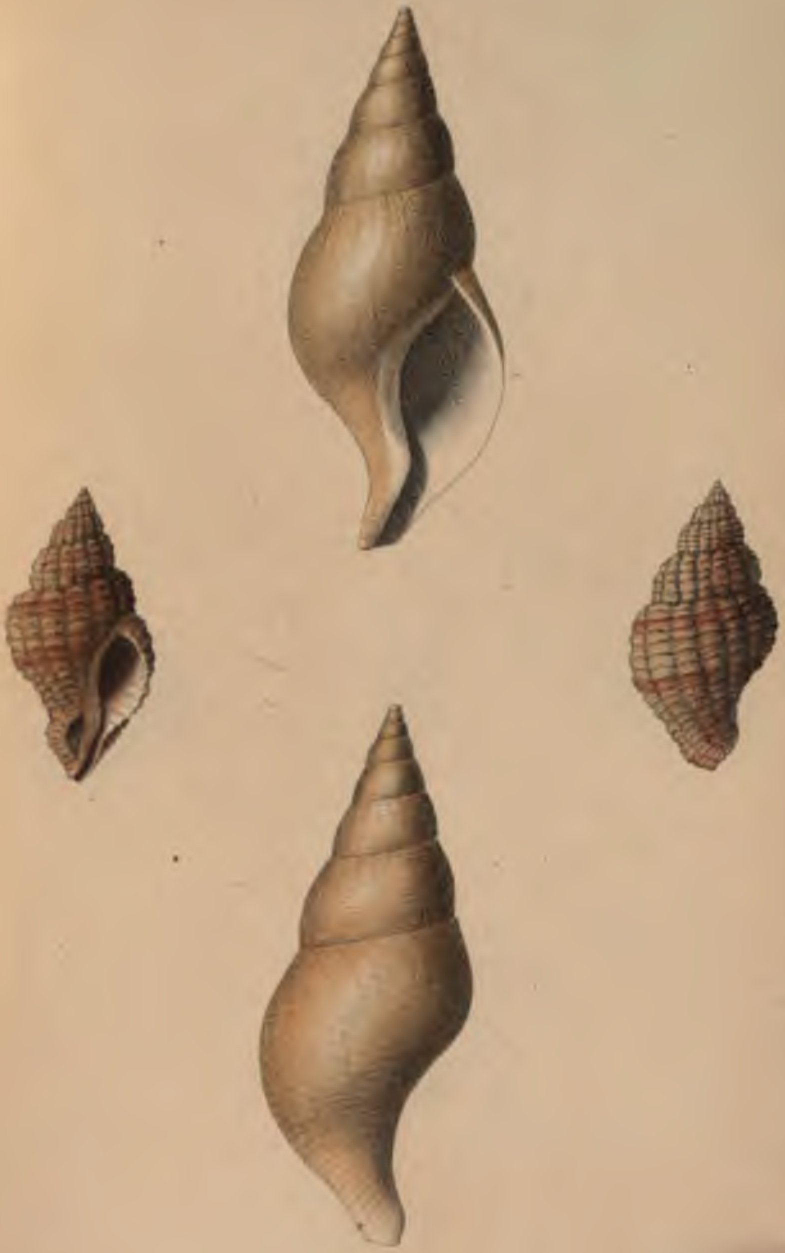




Mrs Say Del. 27 C. Tiebout Sc.

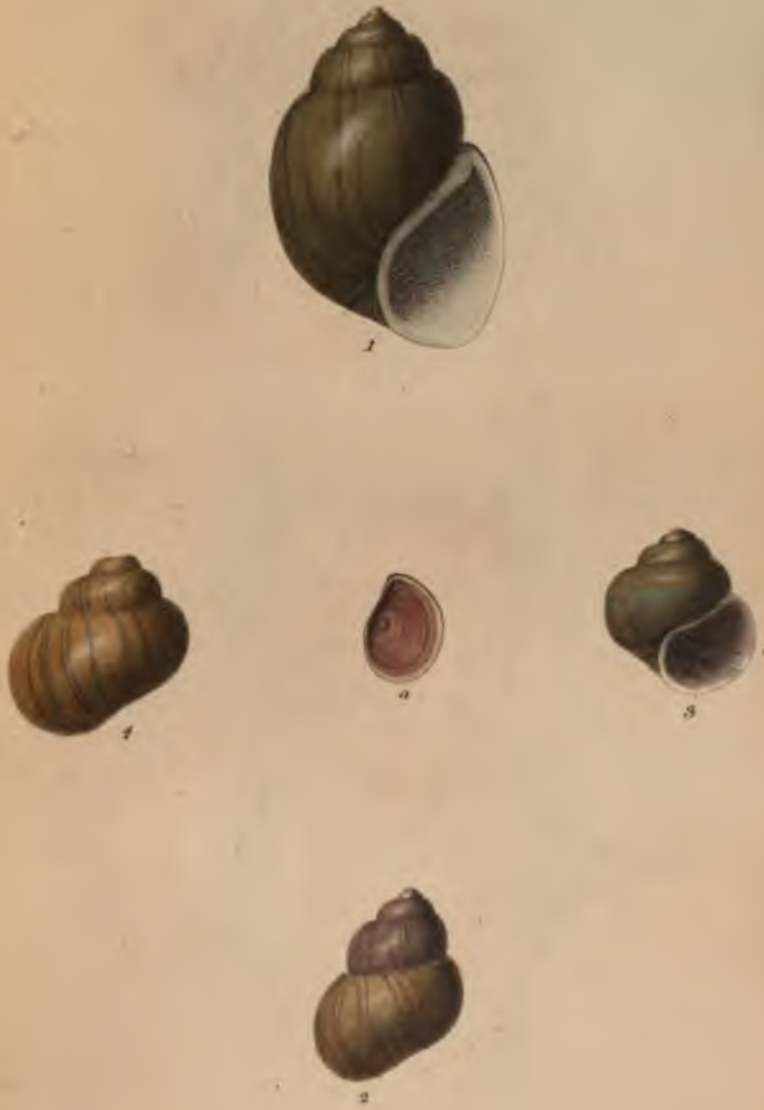


Mrs Say Del. 28 C. Tiebout Sc.



Mrs Say Del.

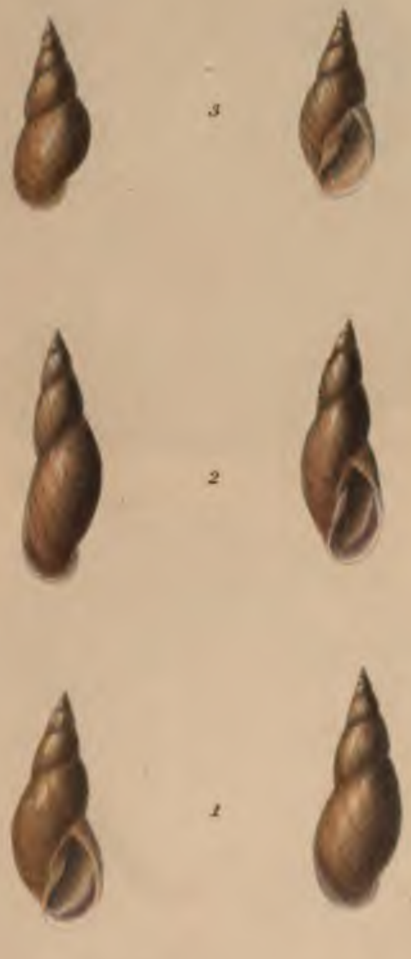
29



30

Mrs Sye Del.

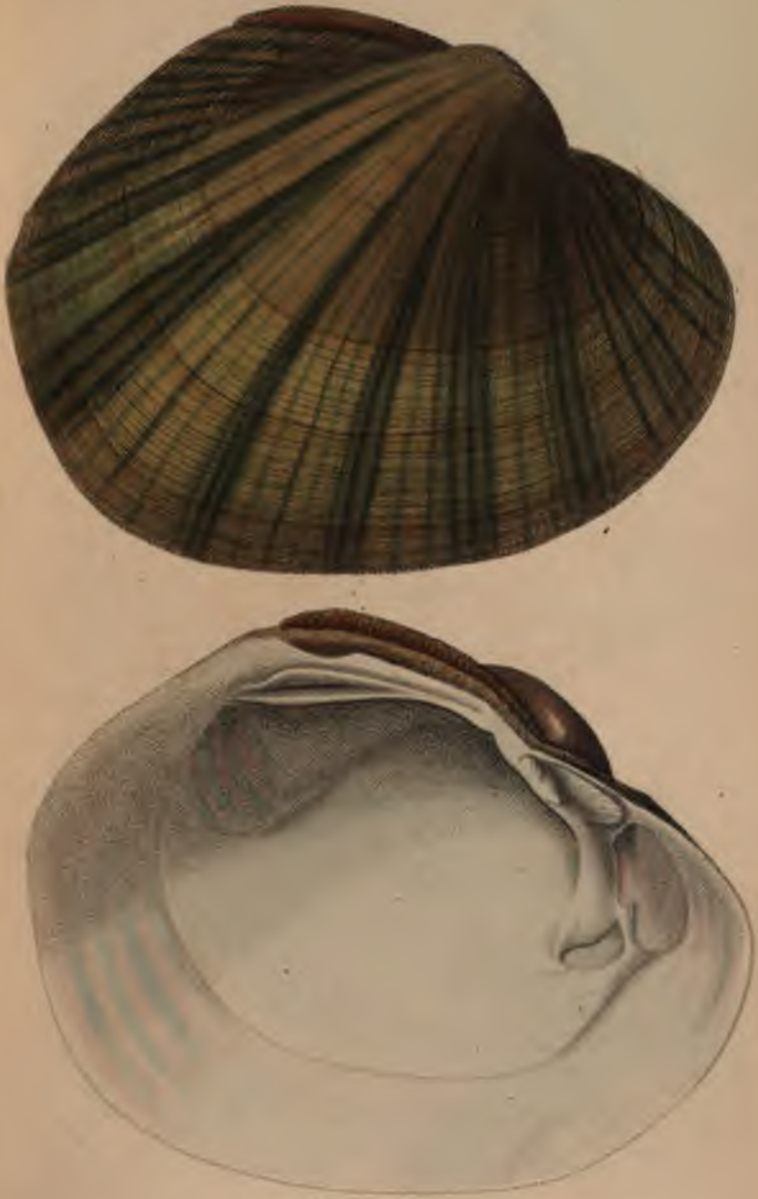
J.Tait



M^rs Say Del.

1 Lymneus umbrosus. S.
2 reflexus. S.
3 elodes. S.

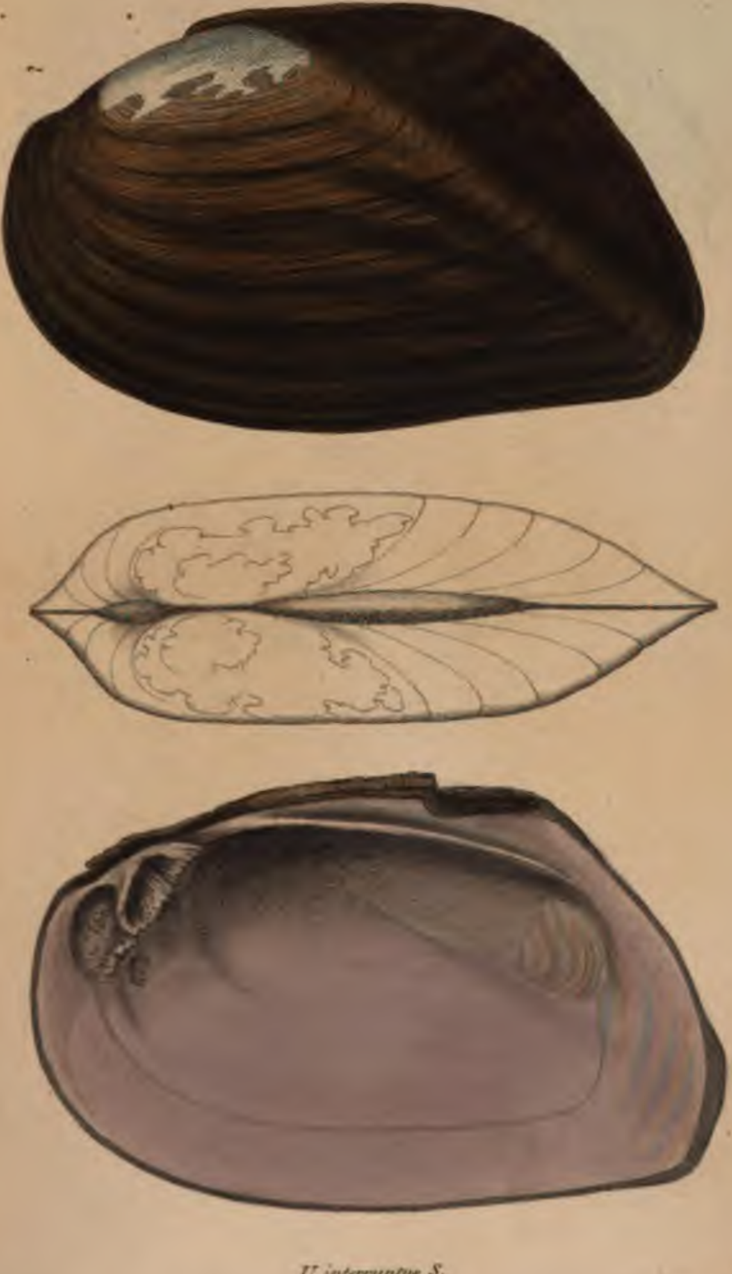
31



Unio ventricosus, Barnes.

Mrs Say Del

32

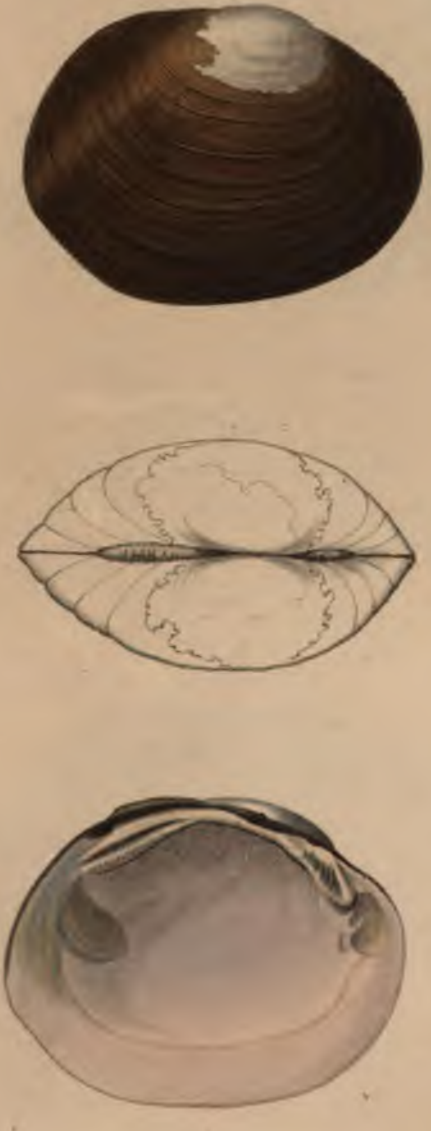


U. interruptus S.

33

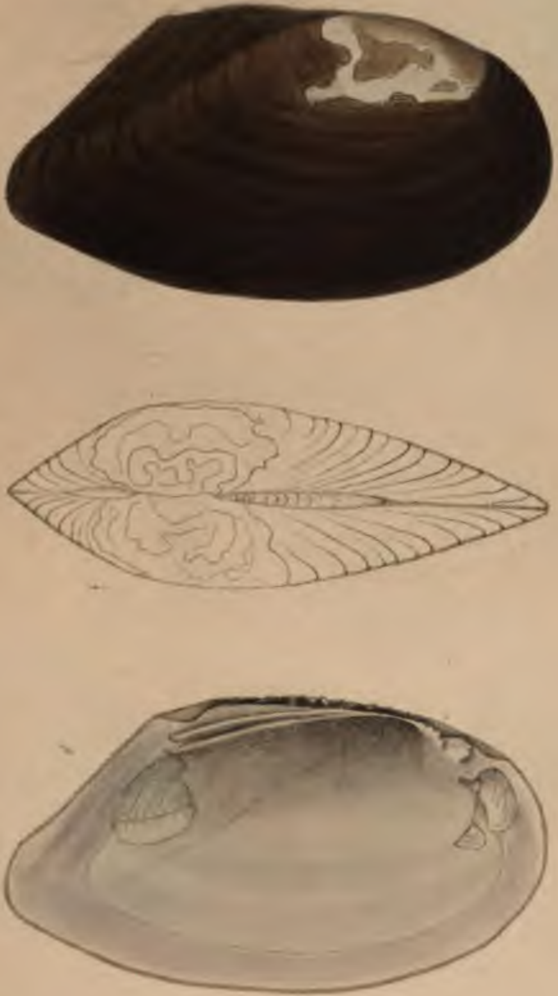
Mrs Say Del.

C. Tiebout Sc.



Unio globulus nob.

Mrs Say Del. 34 C. Tiebout Sc.

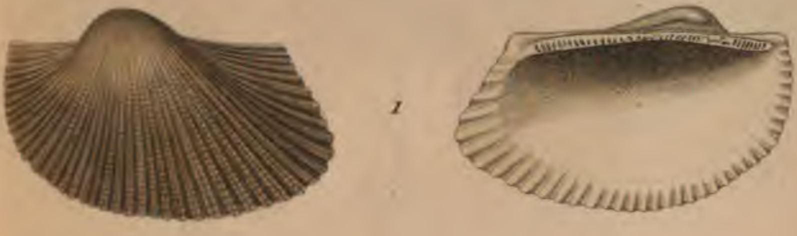


Unio declivis S.

35

Say Del.

L. Le



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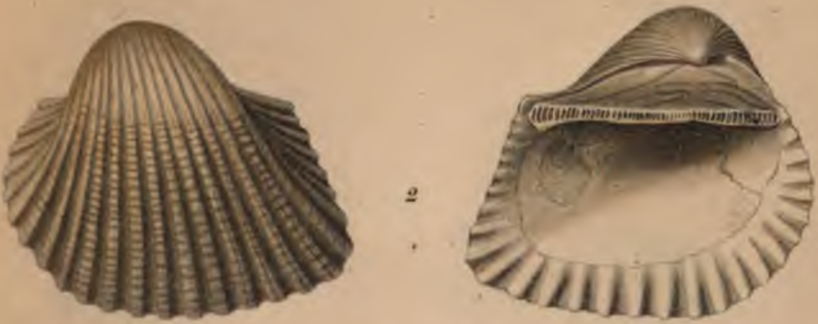


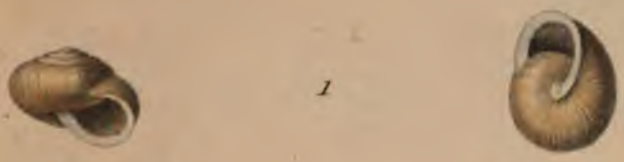
2

1 *Arca limosa* S.
2 .... *staminea* S.

Mrs Say Del.

C. Tiebout Sc.

86



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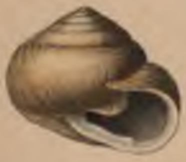

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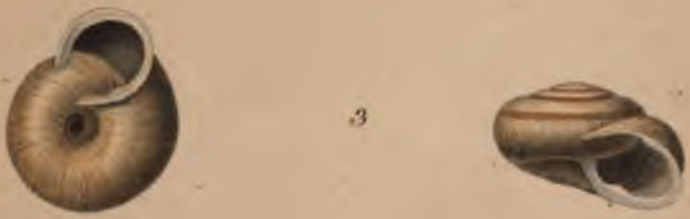
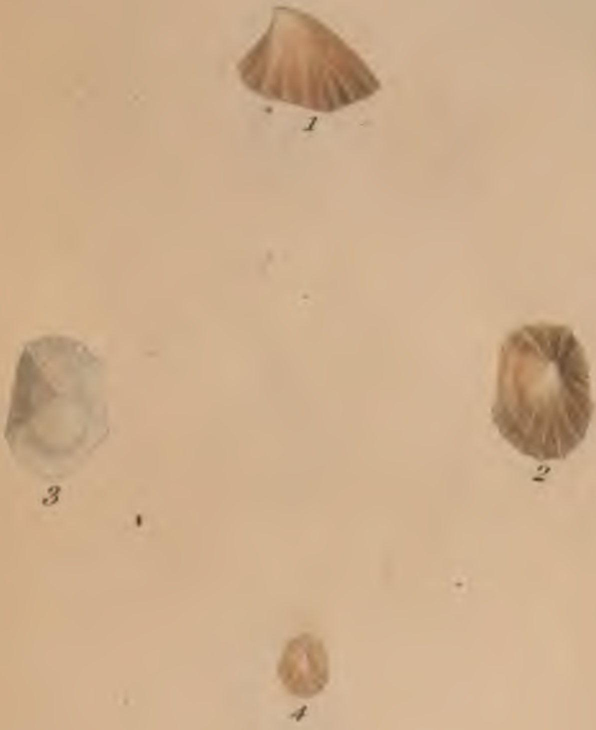


3

1 Helix clausa S
2 elevata S
3 profunda S

Mrs Say Del.

37

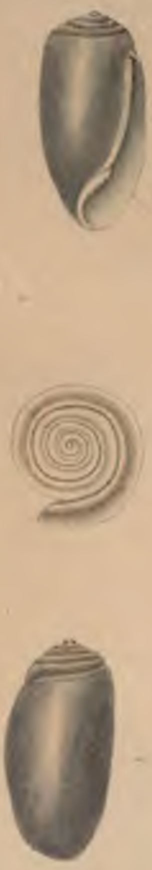


Mrs Say Del.

Siphonaria alternata S.

38

L.Lyo



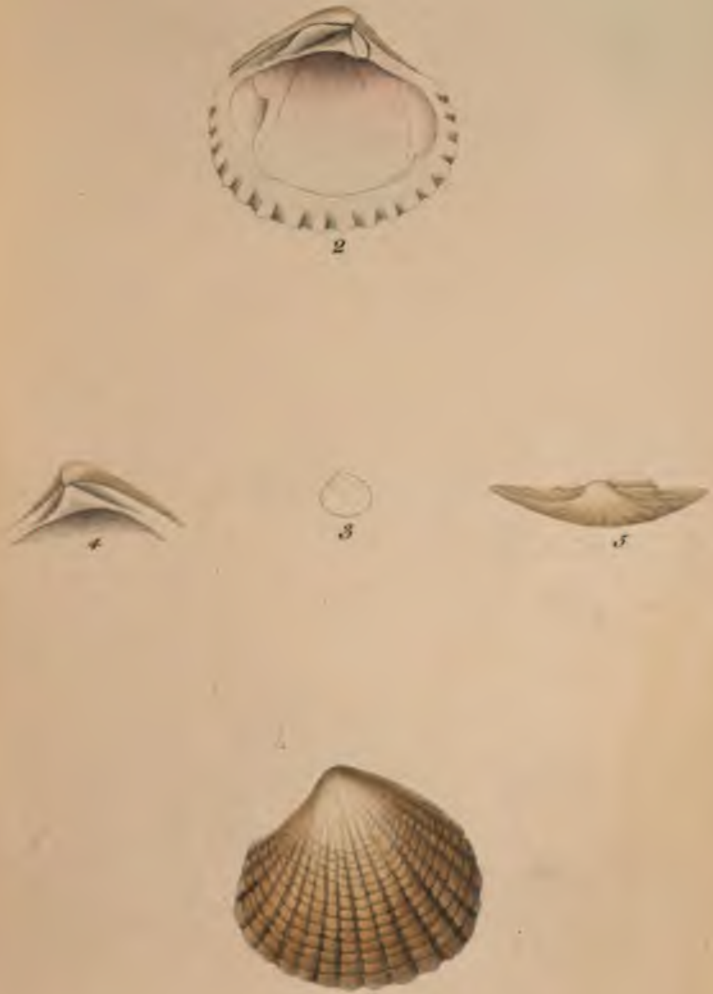
1

Say Del.

Bullina canaliculata S

39

[illegible]

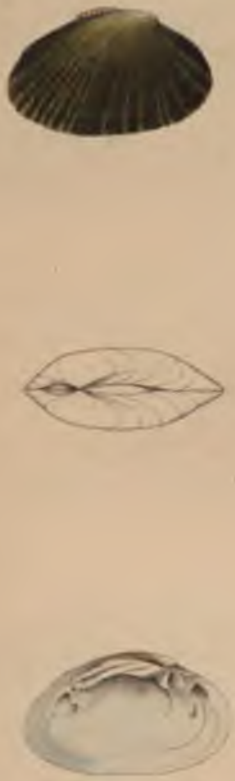


Mrs Say Del.

Cardita tridentata S.

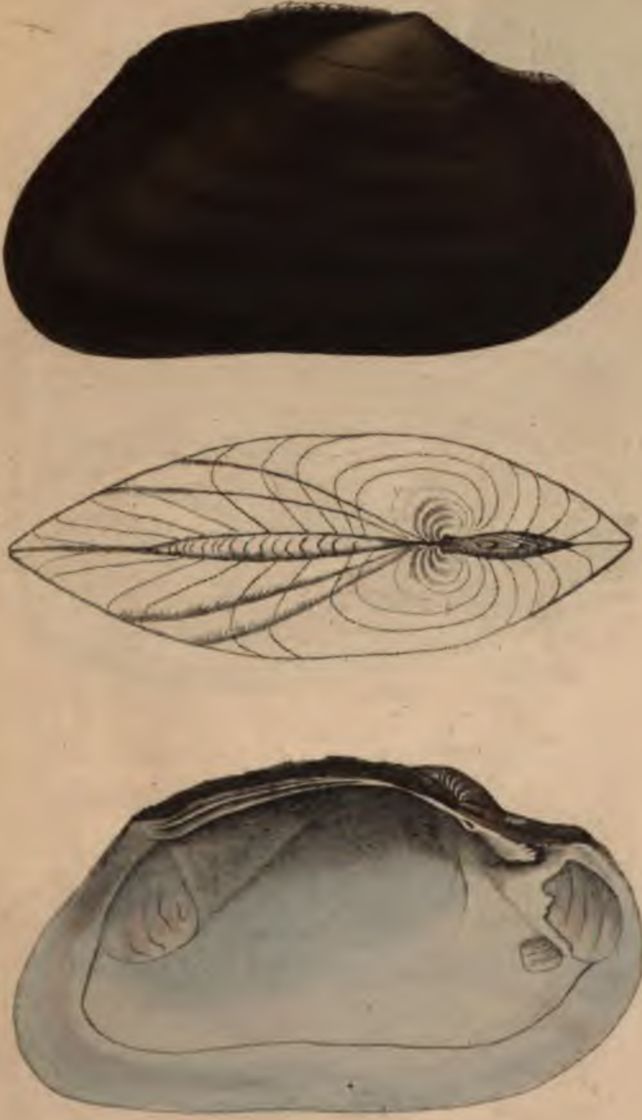
40

L.Lyon



M^rs^ Say Del. *Unio lapillus S.* L. Lyon Sc.

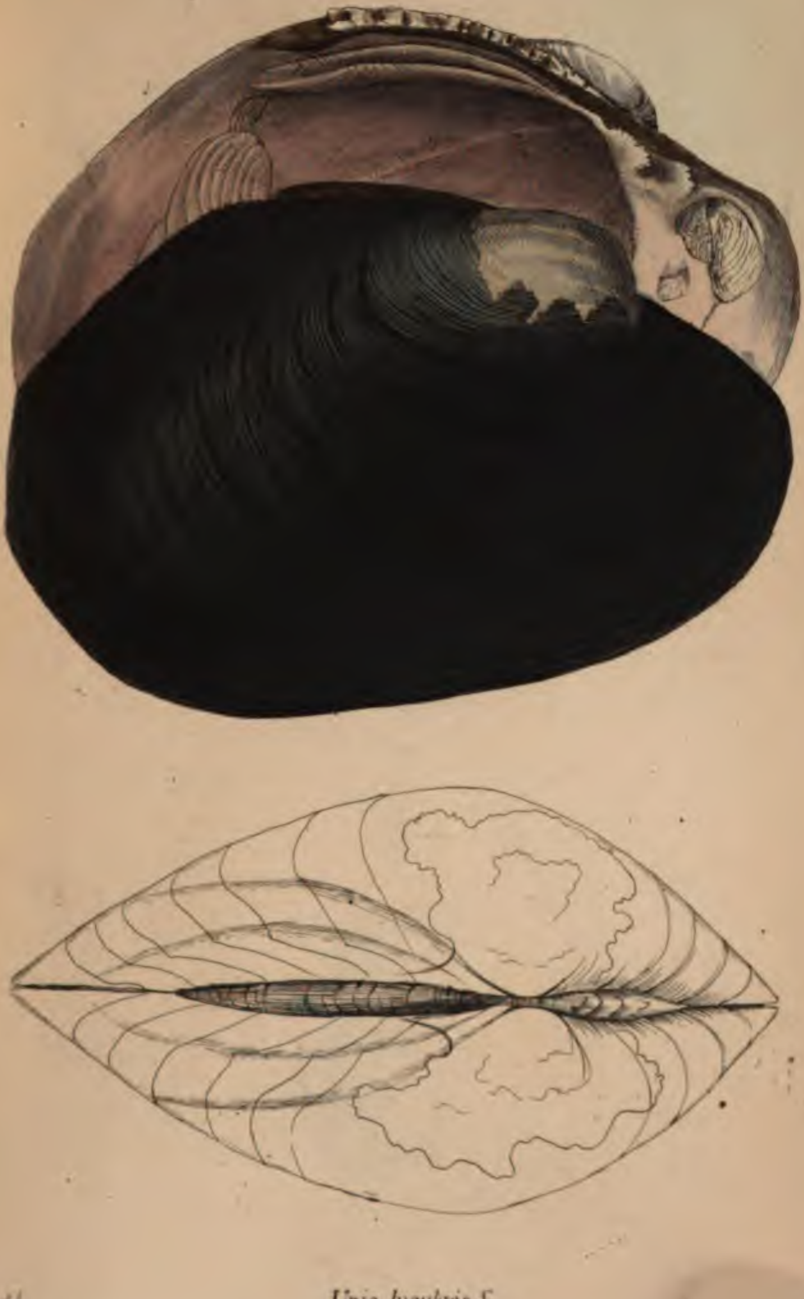
41



Say del.

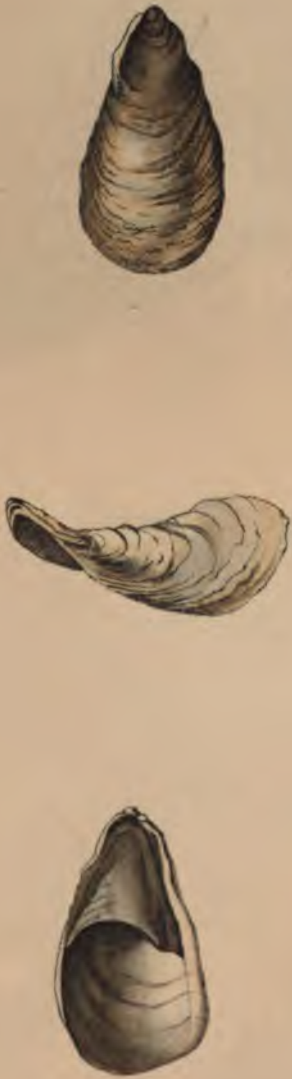
Unio camptodon. S.

42



Mr Say del.

Unio lugubris. S.

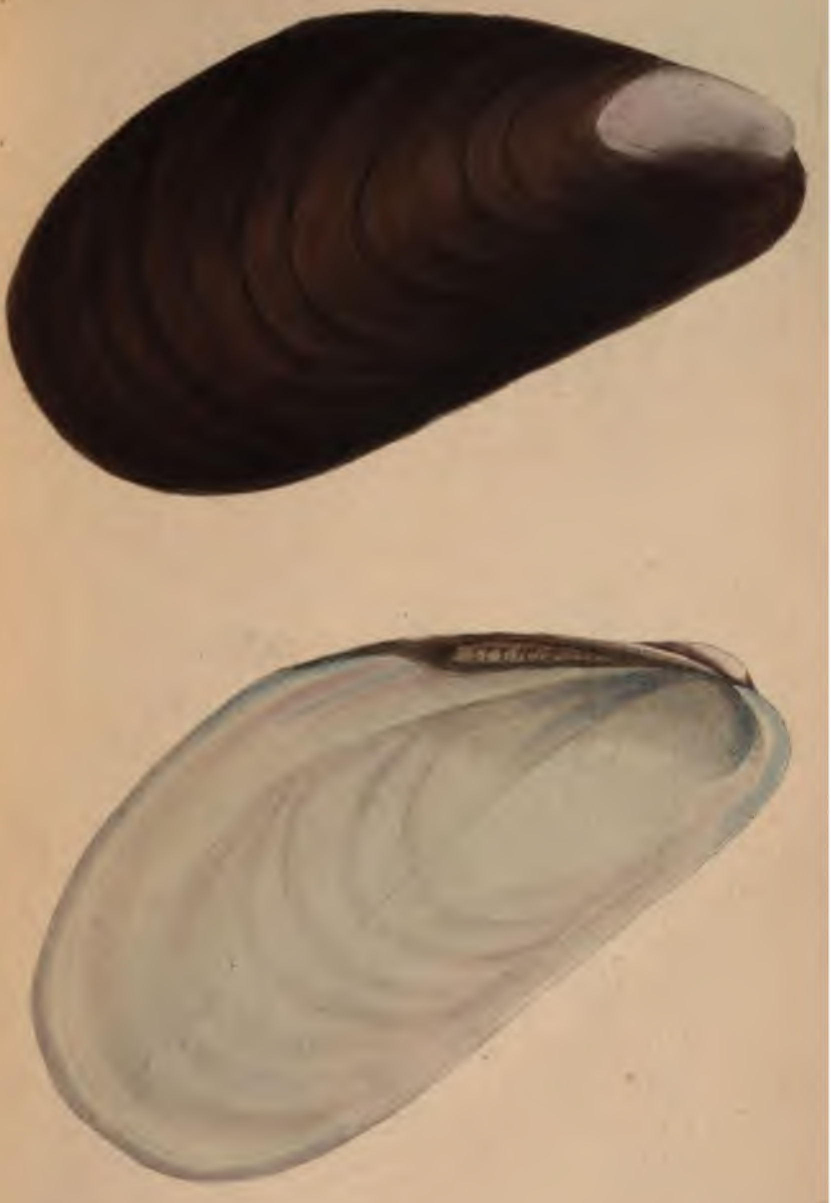


Say del.

Crepidula plana. S.

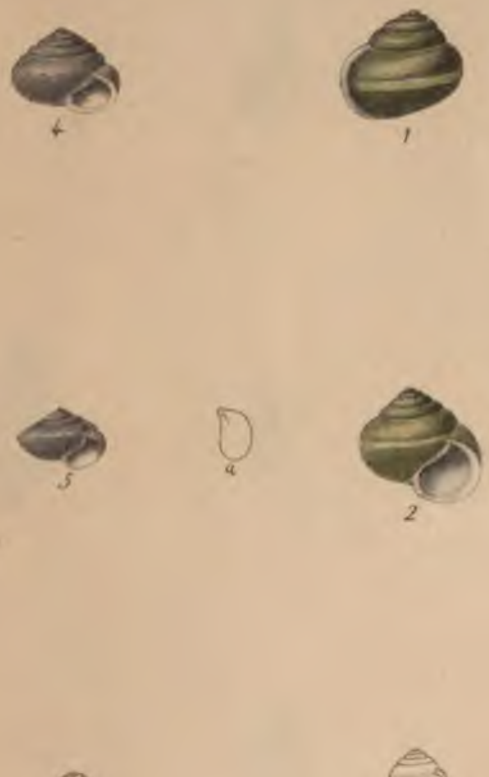
44

L. Lyon



Mrs Say Del. Modiola papuana Lam. I. Lyon Sc.

45

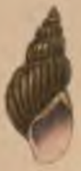


1.2.3 *Helicina orbiculata.* S.
4.5.6.——— *occulta* S.

M.rs Say Del.

66

L. L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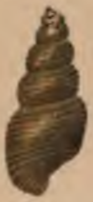
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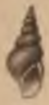
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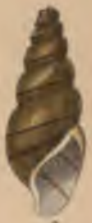
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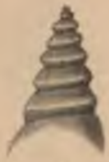
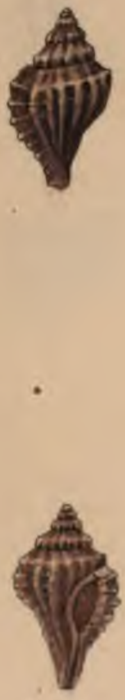

a

1 Melania laqueata, S.
2 ....virginica, S.
3 ....multilineata, S.
4 ....semicarinata, S.

47

Say del.

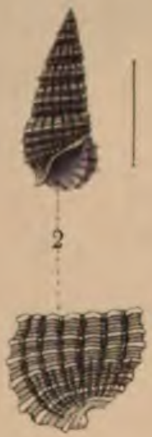
L



Mrs Say Del.

Ranella caudata. S.

48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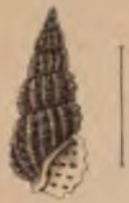
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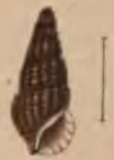

3

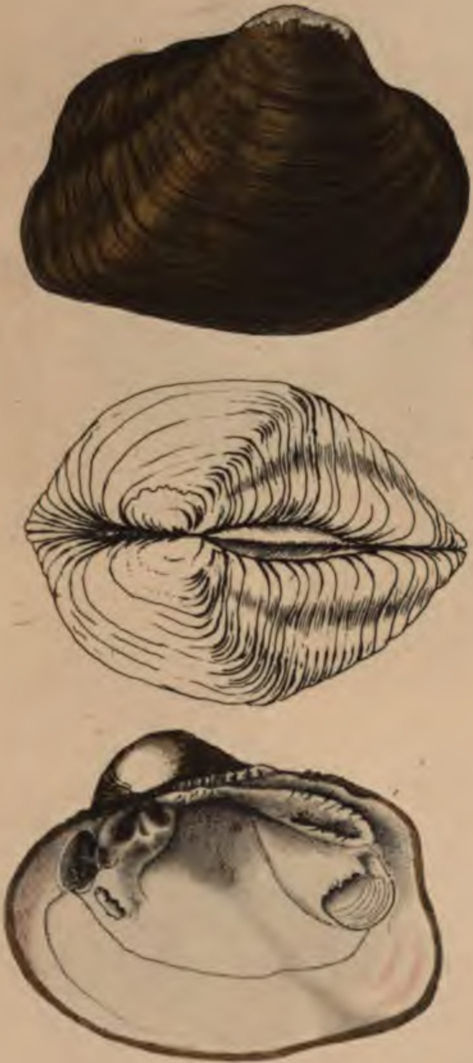
1. *Cerithium muscarum, S.*
2. ……………… *7-striatum, S.*
3. ……………… *ferrugineum, S.*

T. Say del.

49

Mrs Say Del.

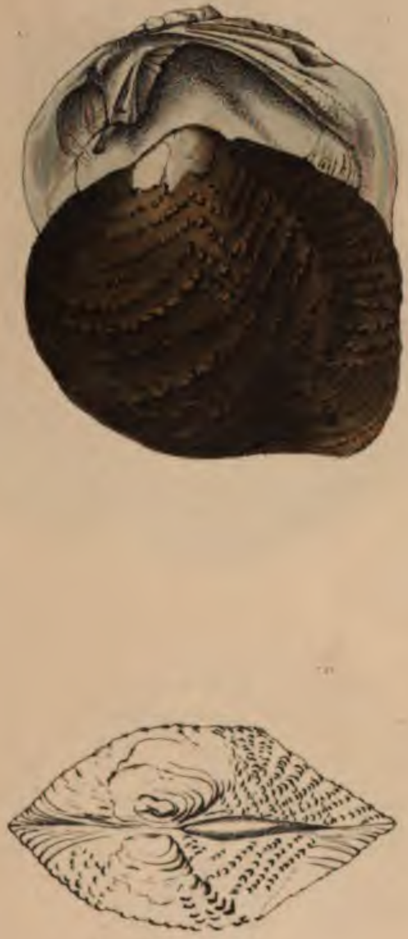
Mytillus hamatus. S.
50



del.

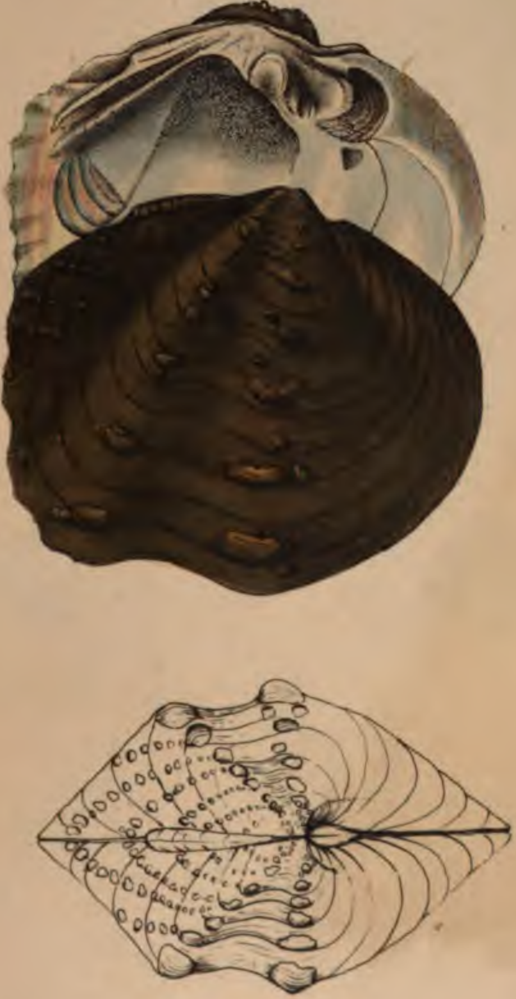
Unio nexus, S.

51



Unio apiculatus S.

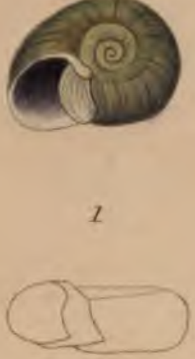
A. Lesueur Del. 52 L. I



Unio quadrulus Raf.

53.

Mrs Say del *L. Lyon*



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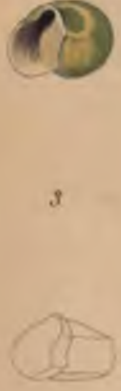

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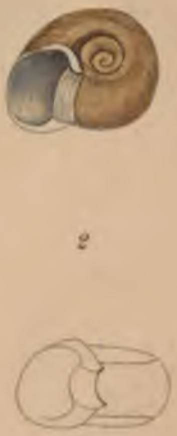
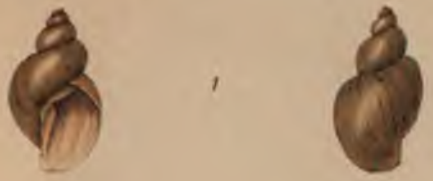
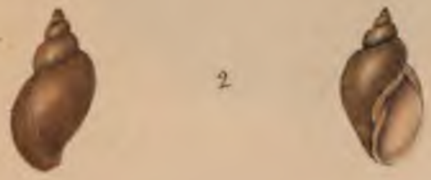


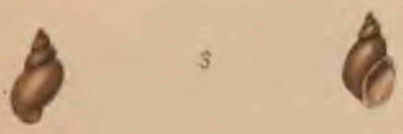
2

1. Planorbis lentus, S
2. ________ trivolvis, S
3. ________ bicarinatus, S
54

Mrs Say Del.



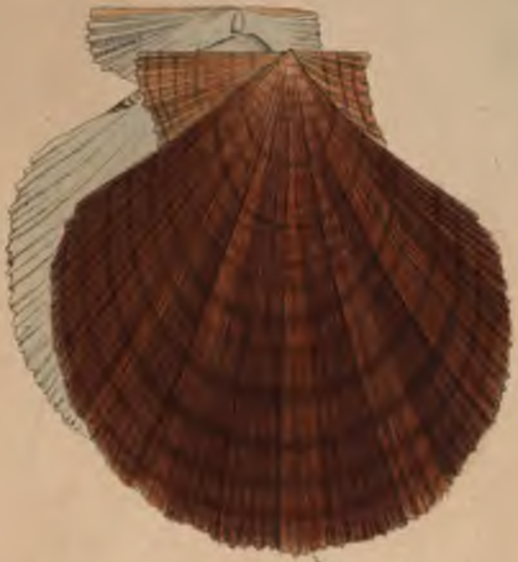




1 Limneus emarginatus, S.
2. . . . . catascopium, S.
3. . . . . decidiosus, S.

Mrs Say del.

55



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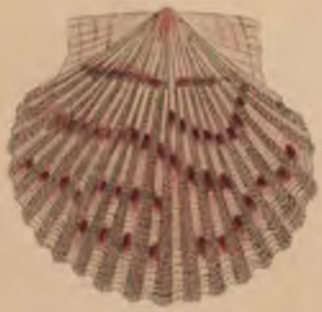
1.a.



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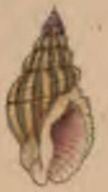
1. Pecten islandicus, Mull.
2 —— dislocatus, S.
36

Mrs Say del.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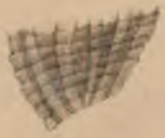
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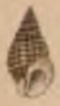
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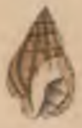
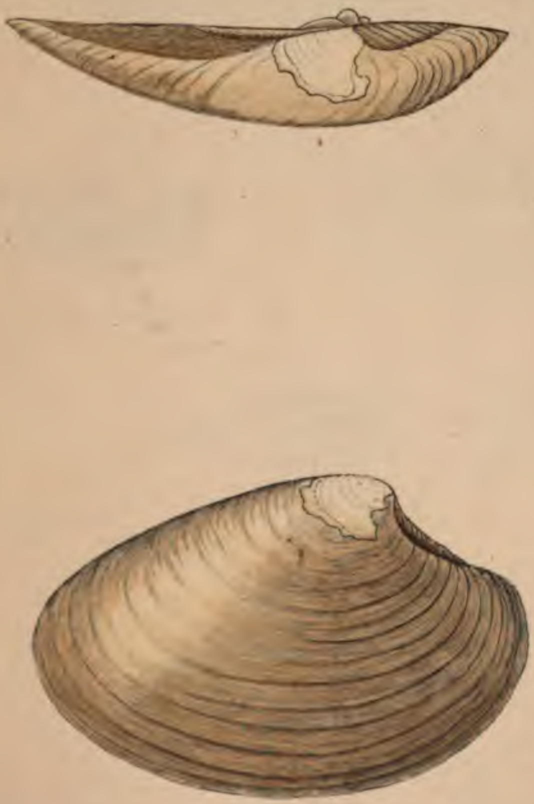

2

1. Nassa unicincta. S
2 vibex. S
3 .... acuta. S

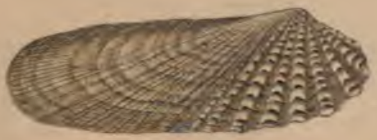
Mrs Say Del.

57

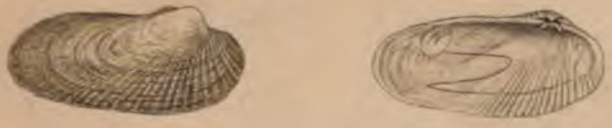


Cytherea albana S.

59



1



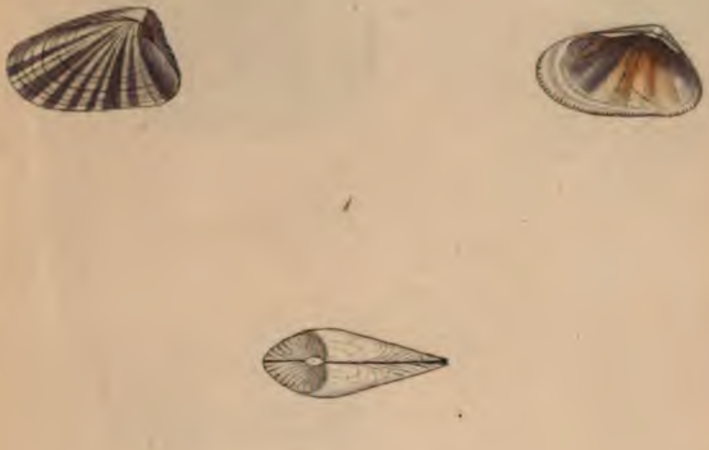
2

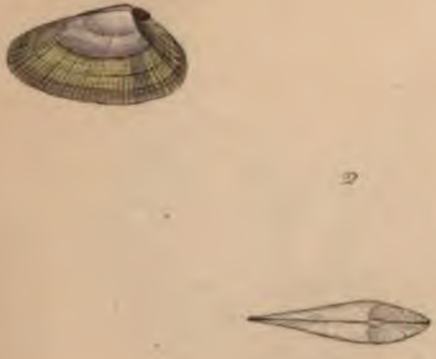
1

1. Petricola pholadiformis. Lam.
2 ________ dactylus Sow.

60

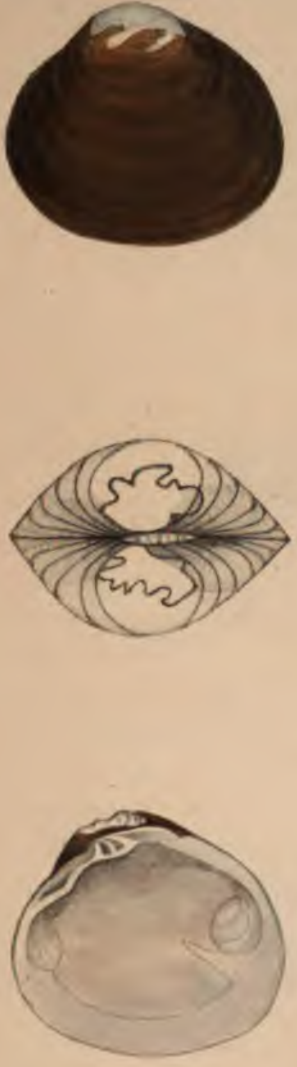
Sow Del.





1. *Donax variabilis*, S.
2 —— *fossor*, S.

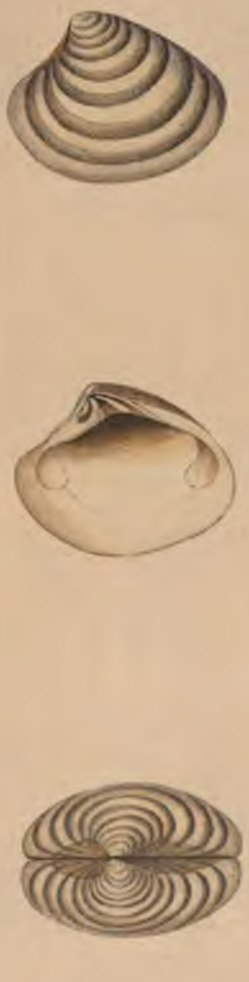
Mrs Gray del.



Cyrena caroliniensis

62

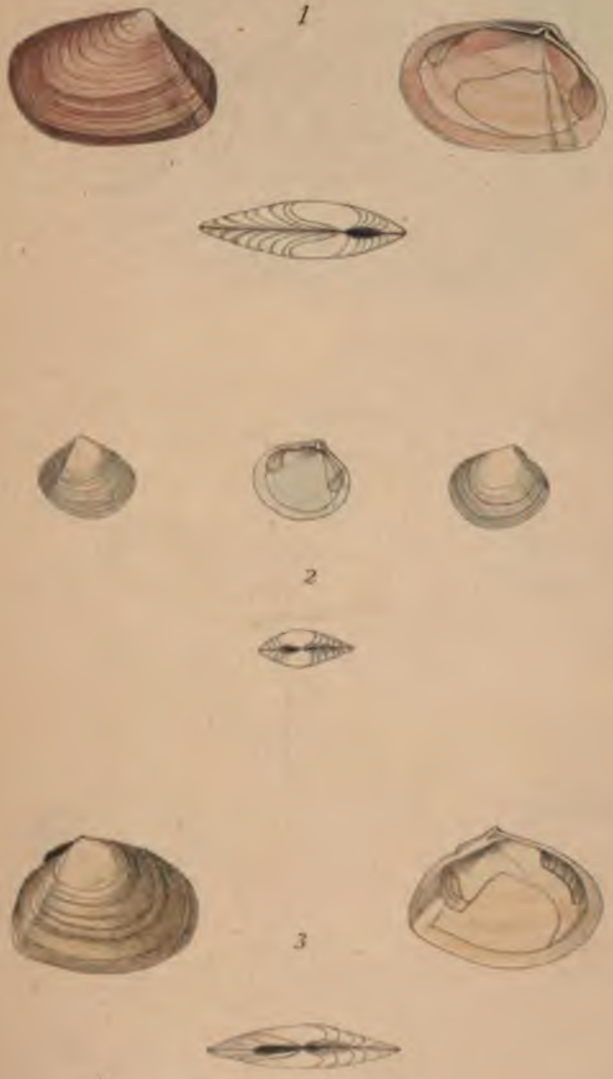
Mrs Say del.



Venus alveata, Conrad.

63

Mrs Say del.

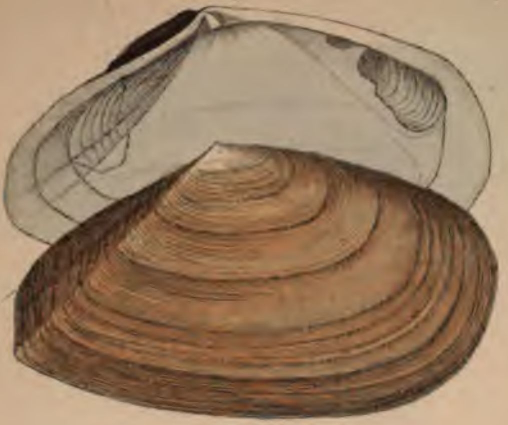


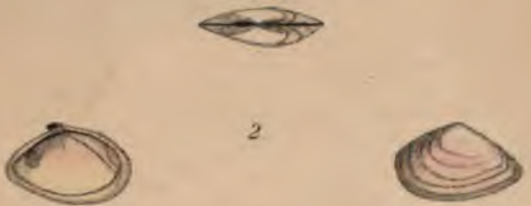
1 Tellina - brevifrons S.
2 . mera S.

64

Jho Say

1





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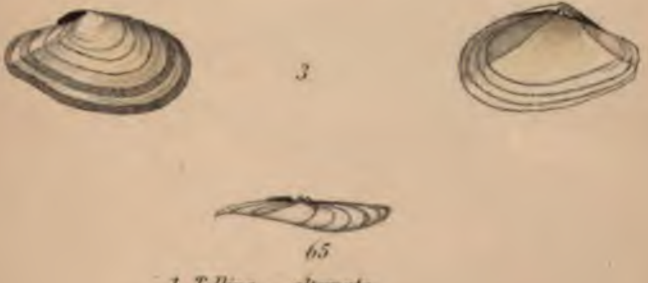
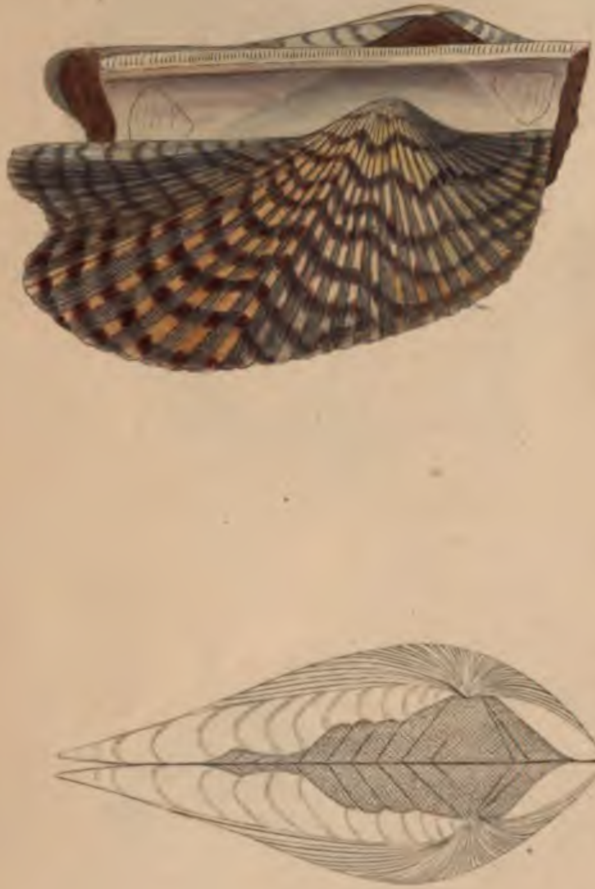


3

65

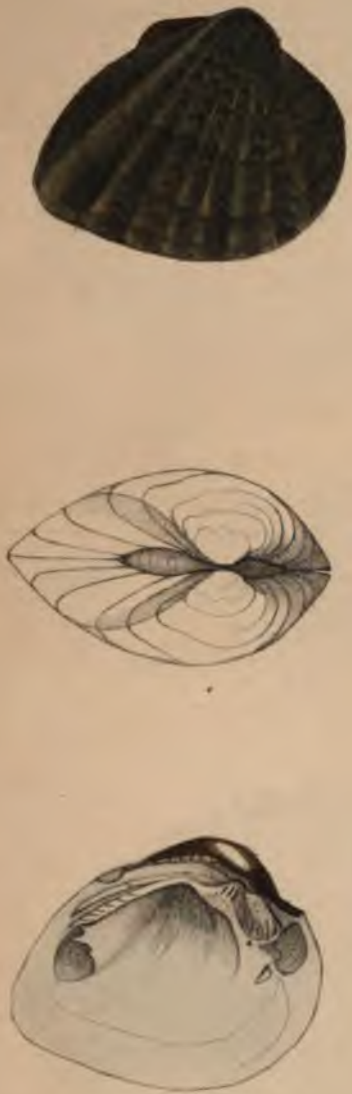
1 Tellina _ alternata
2 . _ polita
3 . _ tenta

M



Arca zebra. Sw.

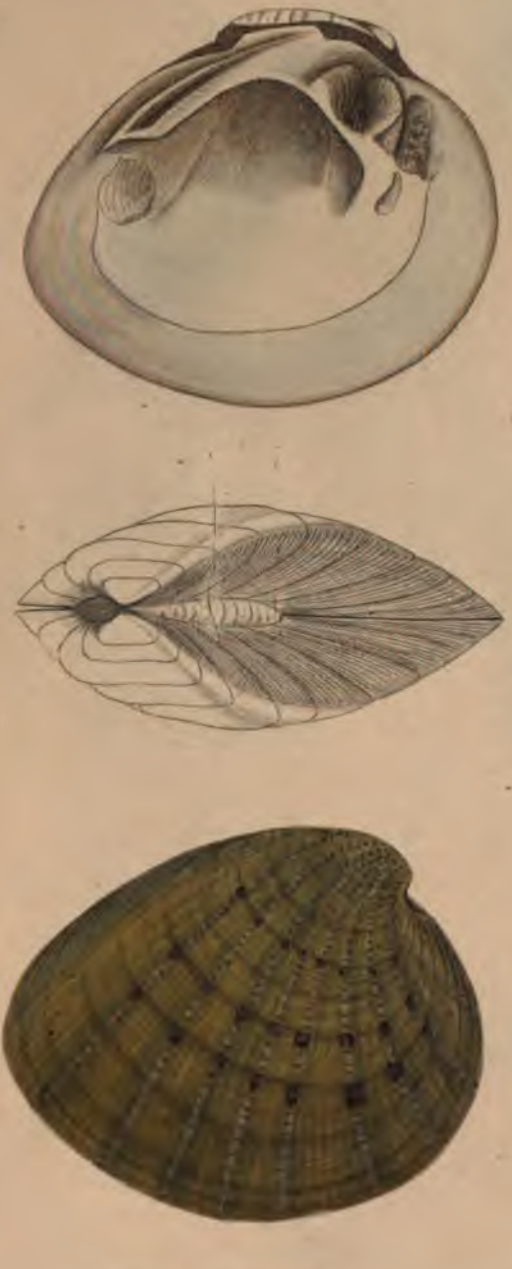
65



67

Unio truncatus Raf.

Mrs. Say del.



Unio lineolatus, Raf.

88

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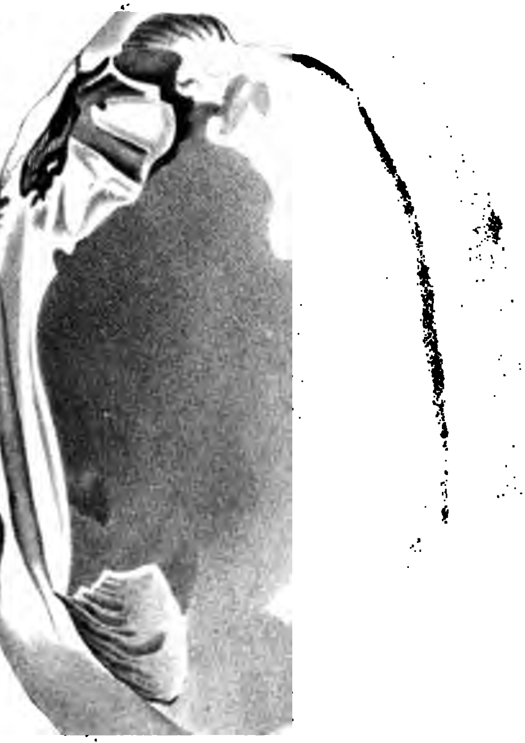

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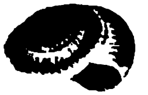

2

1

(T.Say del. Nicholson's Enc: Pl. 1. Fac simile.)

Plate 70.

6

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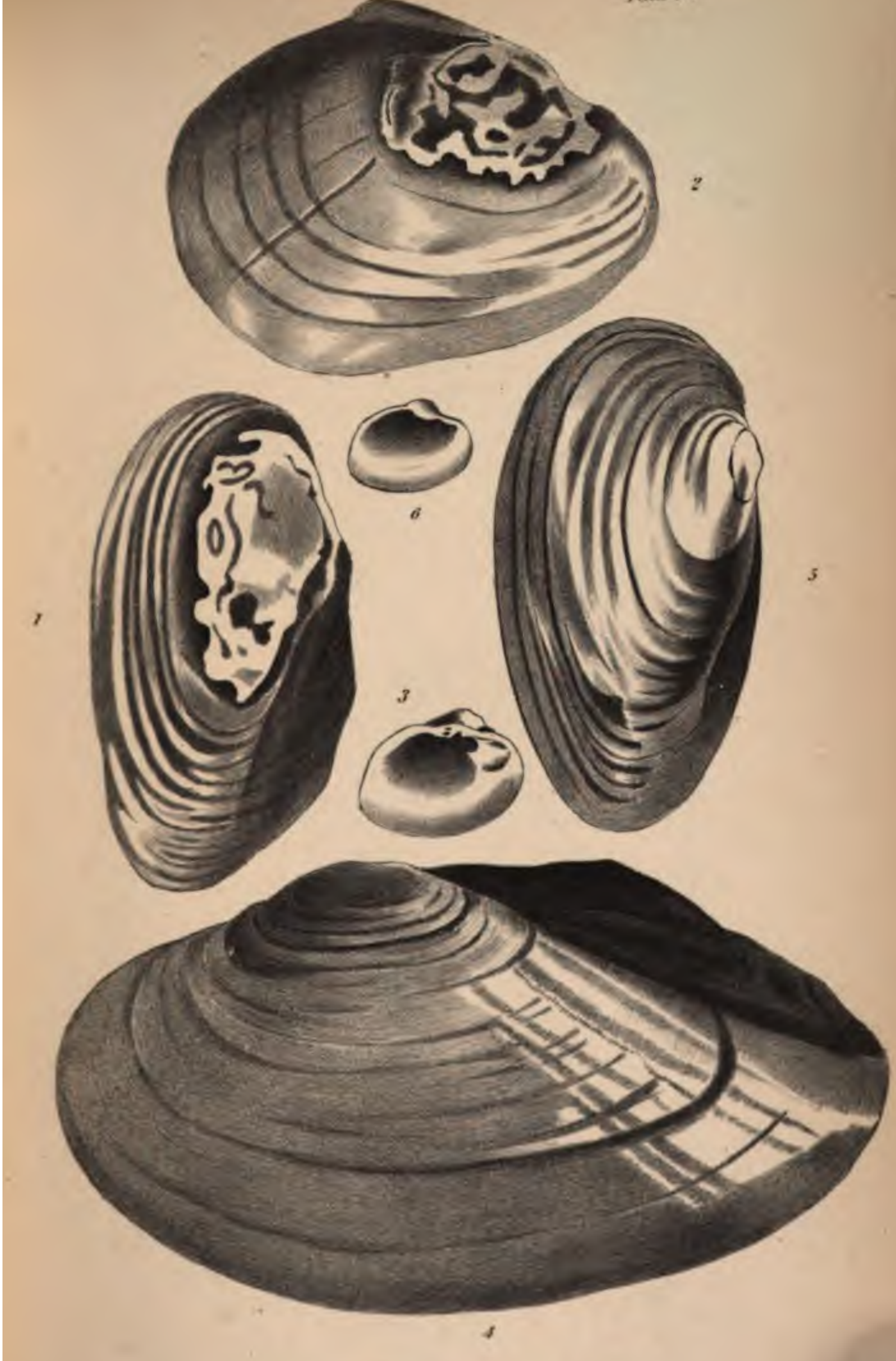
T. Say del. Nicholson's Ency. Pl. 2 Fac simile

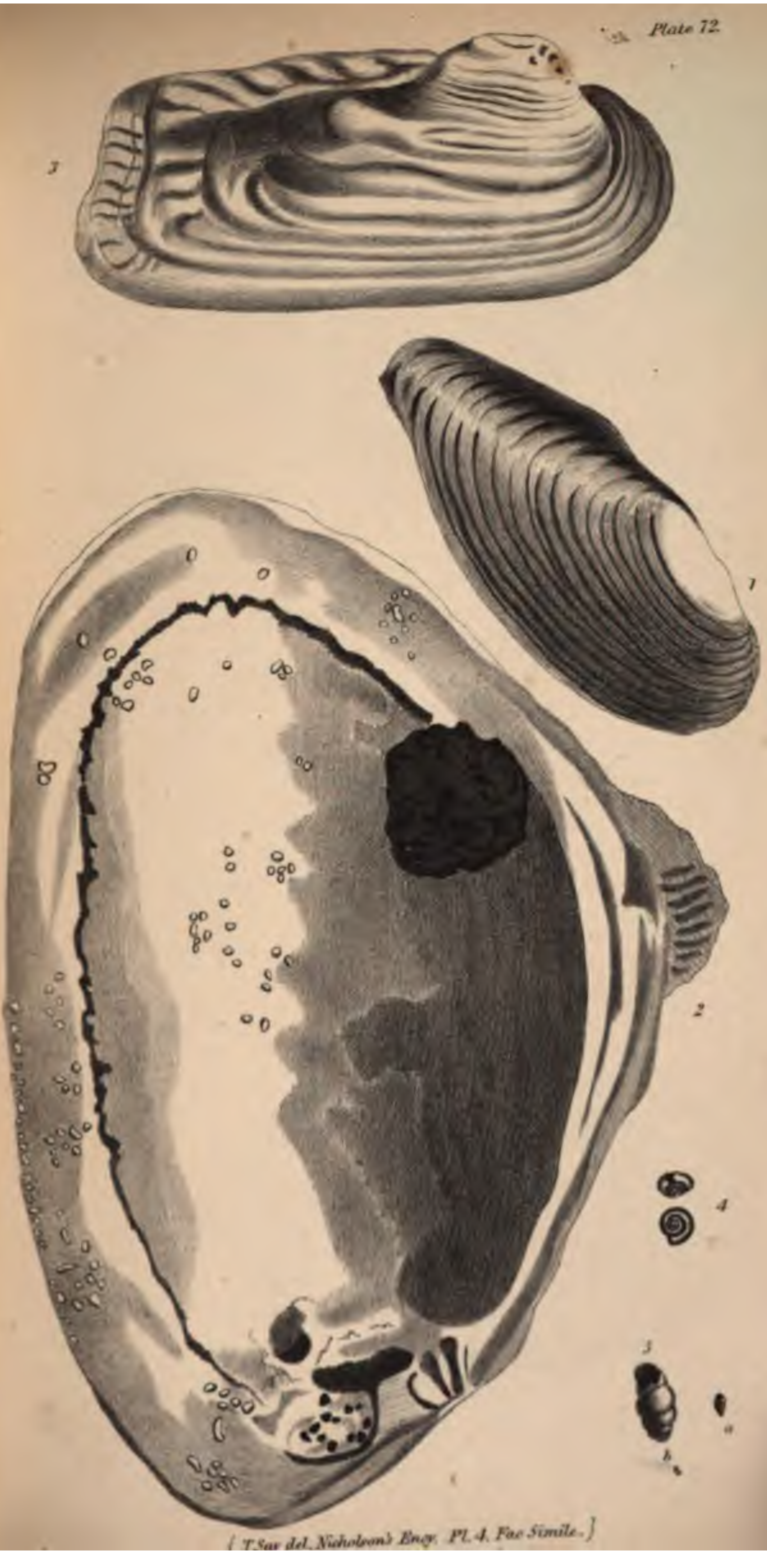
2

Plate 71.



[T. Say del. Nicholson's Ency. Pl. 3. Fac simile.]

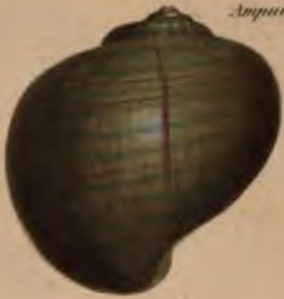
Plate 72.



[T. Say del. Nicholson's Ency. Pl. 4. Fac Simile.]

2

Ampularia depressa



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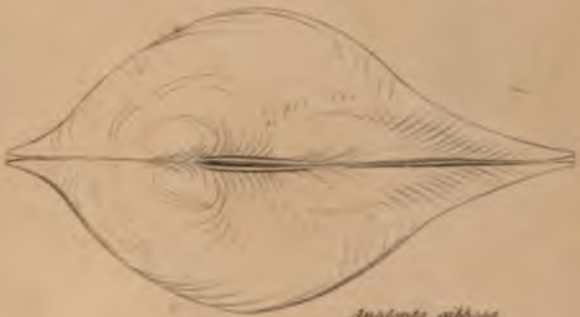
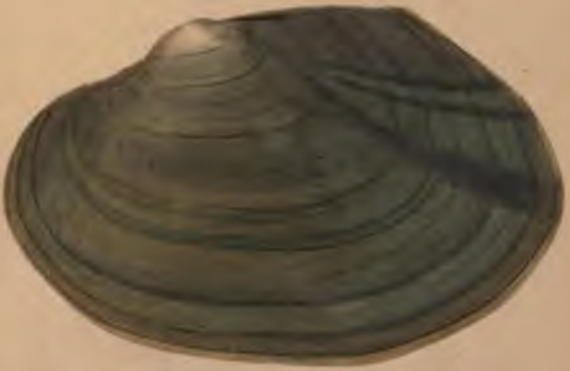
Chenemblana intricata

4



Anodonta gibbosa

3



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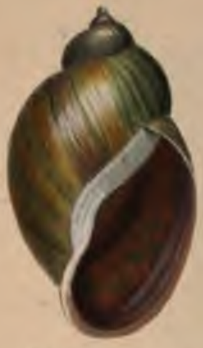
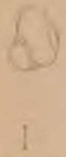


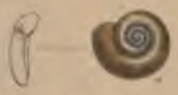
Lymnæus megasomus

11



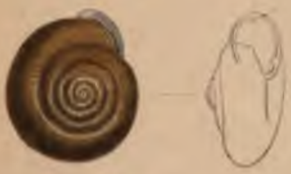
Valvata sincera

8



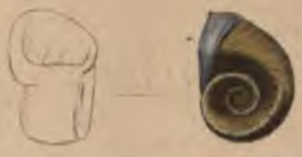
Planorbis deflexus

4



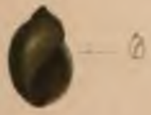
Helix diodonta

9



Planorbis corpulentus

6



Succinea aurea

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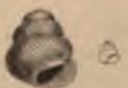
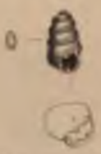


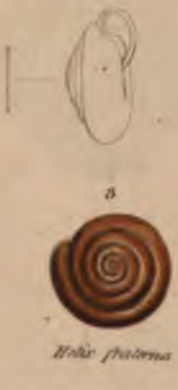
Helix harpa

5



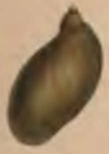
Pupa modesta

3



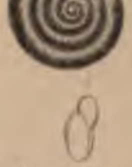
Helix fraterna

7



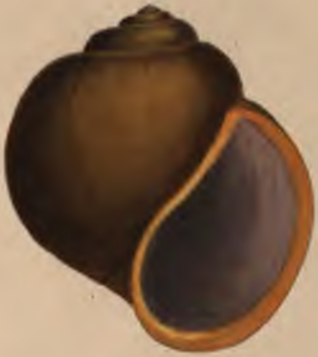
Succinea obliqua

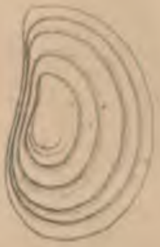
2

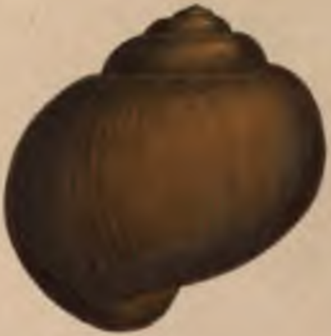


Helix porcina

75







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Paleontology. Agassiz, Brandt, Brongniart, Brongniart et Desmarest, Burmeister, Cotteau, Cuvier, D'Archiac et Haime. Deshayes. D'Orbigny. Dunker et Meyer, Duval-Jouve, Edwards M., Ehrenberg, Eichwald, Geinitz, Gervais, Goldfuss, Hall, Hart, Koch and Carus, Konig, Koninck, Lamarck, Lindley and Hutton, McCoy, Mantell, Memoires, Mesny, Miller, Owen, Paleontographical Society, Parkinson, Pictet, Pomel, Schlotheim, Schmerling, Sedgwick and McCoy, Tuomey and Holmes, Unger, Vogt, Walch, Warren, Wood, Zieten.

Physical History. Johnston, Jukes, Lecoq. Maury, Mecatti, Meyen, Schmarda.

Reptilia, Worms, etc. Bell, Catesby, Diesing. Dujardin, Dumeril, Dumeril et Bibron, Fontana, Holbrook, New York, Schlegel.

Siluria. Barrande, Murchison.

Star Fishes. Forbes.

Taxidermy. Brown, Swainson.

Voyages and Surveys. Adams, Barth, Bartlett, Brown, Expedition, Gardner, Gilliss, Humboldt and Bonpland, Juan et Ulloa, Leske, Livingstone, Lyell, Pacific R. R., Perouse, Sauley, Sibuet, Voyage.

Zoophytes, Polypi and Corals. Allman, Baker, Dumortier et Van Beneden, Edwards M., Edwards et Haime, Ehrenberg, Esper, Johnston, Landsborough, Laurent, Lesson, Tugwell.